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**Foreign  
Agriculture**



..... a Review of Foreign  
Farm Policy, Production,  
and Trade



Issued Monthly by

UNITED STATES DEPARTMENT OF AGRICULTURE  
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WASHINGTON, D.C.

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# Foreign Agriculture

..... a Review of Foreign  
Farm Policy, Production,  
and Trade



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## I N T R O D U C I N G . . .

This is the first number of "Foreign Agriculture", a monthly review issued by the Bureau of Agricultural Economics. It will include primarily the kind of material that has been embodied in the feature articles formerly appearing in "Foreign Crops and Markets." The field that will be covered by these articles will, in general, fall within three broad classifications - (1) foreign government policies relating to agriculture, (2) foreign agricultural production, and (3) international trade in agricultural products.

The articles appearing in "Foreign Agriculture" will consist largely of the results of special research or investigation conducted by the Washington staff or foreign field offices of the Bureau of Agricultural Economics and other Bureaus of the Department of Agriculture, and adaptations from outstanding reports from American Consular offices. In addition, each issue will include a number of brief notes on outstanding developments in the foreign agricultural economic field.

"Foreign Crops and Markets" will be continued on a weekly basis but in abbreviated form. It will contain primarily current information on foreign production and foreign trade in agricultural products of significance to American agriculture.

The longer commodity review material that has formerly appeared in "Foreign Crops and Markets" will henceforth be included in the commodity "situation" reports issued monthly by the Bureau.

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RECENT DEVELOPMENTS  
IN SOVIET AGRICULTURE

. . . . . By L. Volin \*

Prior to 1929-30, small peasant farming predominated in Russian agricultural economy. Since that year, however, a strong and consistent effort has been made by the Soviet Government to collectivize agriculture and to increase the volume of agricultural production. In the spring of 1936 more than 18,000,000 peasant households, or 89 percent of the total, were combined in less than 250,000 collective farms. Along with the collective farms, which are theoretically a type of producers' cooperatives, there were organized state farms completely owned and operated by the Government. In 1928 collective and state farms together accounted for about 3 percent of the acreage, while the remaining 97 percent was in individual holdings. In 1935, collective and state farms comprised over 90 percent of the acreage. This transition was not accomplished without a serious crisis, resulting in a decreased production of crops and a heavy reduction of livestock numbers. Since 1933, however, with some concessions granted to the individualistic tendencies of the collectivized peasantry, Soviet agriculture has shown definite signs of recovery.

Soviet agriculture during the past 3 years has been gradually recovering from a crisis that marked the wholesale Government reorganization of farming on a collectivist basis. The roots of this crisis can be discerned in the immediate precollectivization period during the years 1927-1929. Difficulties with the grain supply forced the Soviet Government (which was determined on an ambitious program of industrialization, requiring an increased output of grain and other farm products) to suspend grain exports, to introduce a rationing system of breadstuff supplies for the industrial population, and to engage in a struggle with the peasants that was reminiscent of the grain battles of the period of War Communism (1918-1921). Thus the Soviet agricultural crisis was in its origin primarily a grain crisis, which subsequently extended to other branches of agricultural production. With the dominant position of cereals in Russian agricultural economy and Russian diet, however, the grain situation presented the most important problem.

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Collectivization

The unfavorable turn in the grain situation contributed greatly to the ending of the truce between the Bolsheviks and the peasantry under the so-called New Economic Policy or "Nep", which Lenin brought about in the spring of 1921 by the abandonment of forced requisitions of farm products, practiced during the years of War Communism. a/ The Government turned particularly against the kulaks, or more prosperous peasants, who possessed a surplus of grain. Simultaneously the Soviet Government determined upon the so-called "socialist reconstruction of agriculture", through the development of collective and state farming and machine-tractor stations. Collective and state farms originated during the early days of the Soviet regime but played an insignificant role in Russian agriculture during the "Nep" period of predominance of individual peasant farming. When, however, the Government decided, through a socialist reorganization of agriculture, to become independent of the kulaks in the matter of the grain supply and to increase the latter, collective and state farms once more came to the fore. b/

Such a reorganization, of course, involved a radical transformation of a majority of some 20,000,000 or more small peasant family holdings into larger farm units. A highly important phase of this process, from the standpoint of agricultural progress, was the consolidation into

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a/ For a discussion of Soviet agrarian policy, see "World Trade Barriers in Relation to American Agriculture", Senate Document No. 70, 73d Congress, 1933.

b/ A collective farm or kolkhoz (plural, kolkhozy) represents an aggregation of peasant properties and is theoretically a form of a producers' cooperative. The prevailing "artel" type of kolkhoz involves collectivization of land, livestock with small exceptions, farm implements, etc.; but the farmstead, with a small plot of cultivated land, remains in the individual possession of the peasant family. A state farm or sovkhoz is owned and managed entirely by the State with the aid of hired labor. A machine-tractor station (MTS) is of more recent origin, having first been organized in 1928 by a sovkhoz in Southern Ukraine, managed by an agronomist, A. M. Markevich. The original aim was to concentrate tractors and farm machinery provided by the State and the necessary technical personnel in special units in order to make for a most effective and efficient utilization of tractors. Voluntary contracts for the performance of various types of field work were made with a group of peasants, preferably a whole village banding together and combining individual land holdings. With the collectivization of peasant farming, however, and monopolization of tractors, combines, etc., in machine-tractor stations, they became an important instrument of Government control and planning in Russian peasant collective agriculture. Furthermore, through payment in kind for the work performed, the MTS proved to be an increasingly important source of State procurements of agricultural products.

larger fields of the numerous scattered strips into which the peasant holdings were usually divided, thus permitting the introduction of modern agricultural technique. The shift to large-scale farming harmonized with the ideological preconception of the Bolsheviks concerning the superiority of large-scale methods of production, inherited from Karl Marx and reinforced by the new faith in the advantages of tractor farming. Through collectivization and mechanization it was hoped to increase the farm output and bring it under a more effective Soviet control.

To attract the peasants into collectives, not only were privileges with respect to land allotment, taxation, credit, supply of machinery, etc., granted to those who joined, but the lot of those who stayed outside was made economically and socially more and more uncomfortable. The climax was reached in the winter of 1929-30 when the Soviet Government accelerated its campaign and no longer aimed merely at a restriction and gradual displacement of the kulaks but at a complete and immediate uprooting of the latter by force, in Soviet terminology the "liquidation of the kulaks as a class." The "liquidation" went hand in hand with wholesale and speedy collectivization of the farming of middle-class and poor peasants, particularly in the principal grain regions. At the same time, the Soviet Government proceeded with the organization of huge mechanized state grain farms, mostly on uncultivated land. Thus, as Stalin pointed out in a historic speech at the Conference of the Marxian Agricultural Economists on December 27, 1929, the Bolsheviks sought "to replace the capitalistic production of the kulaks by socialist production of collective and state farms."

Collectivization, which in the early months of 1930 proceeded by leaps and bounds, suffered a temporary setback in the spring of that year. In the official pronouncements, the act of joining a collective was represented as a matter of voluntary choice for each peasant family except the kulaks, who were to be excluded. Nevertheless, the Soviet and Party officials who were engaged in the ruthless liquidation of the kulaks extended in numerous cases the same coercive tactics to the process of organizing collective farms. Peasants were forced into the kolkhozy, sometimes organized as full-fledged communes rather than as "artels", by officials anxious for a good showing in their districts.

Naturally, these tactics provoked strong discontent on the part of the peasants, in some sections even to the point of rebellion. This alarmed the authorities in Moscow, who were anxious for the success of the crucial spring sowing campaign. A halt was therefore called in the collectivization drive early in March 1930 with the publication in the Soviet press of the famous article by Stalin entitled, "Dizziness from Success." As a result, a large number of the peasants who had joined the kolkhozy left them after the publication of Stalin's manifesto. In the autumn, however, after a good harvest, the collectivization campaign was again resumed, with the result that in June 1931 more than half of the

peasant households (families) were reported in collective farms. In the principal grain regions, collectivization went even further, exceeding in some of these regions 80 percent of the number of peasant households.

In 1928, the year of the adoption of the first Five-Year Plan, collective and state farms together had a sown area of less than 8,000,000 acres. The Plan specified about 47,000,000 acres of sowings in these farms by 1932, but the swift tempo of collectivization went far beyond the goal of the Plan. The collectives in 1931 seeded 195,000,000 acres and the state farms 27,000,000 acres, or altogether 222,000,000 acres. It was on the basis of such criteria as the number or percentage of collectivized peasant holdings and crop area that collectivization was immediately proclaimed a great success.

As a result of these activities, the Sixteenth Party Congress, held in June 1930, claimed in its resolutions that "The Party is actually solving the fundamental and most difficult problem of agriculture, the grain problem." The Chairman of the Delegation of U.S.S.R. at the International Wheat Conference in London in May 1931 made the following statement: "The new principles of state and collective farming, combined with the advantages of a system of planned economy and utilization of modern machinery, make it possible for the U.S.S.R. to enter the world market with a high quality of grain at lower cost of production than a number of other countries." The excellent crop harvested in 1930 after 3 years of average or below-average crops gave substance to such claims. That exceptionally favorable weather conditions were primarily responsible for the high yields, attained notwithstanding a sowing campaign dangerously extended late into June and inefficient harvesting methods, was not permitted to dim the glory of collectivization.

#### The Crisis

The weather, which was so helpful to the new collectivized farming in 1930, was less favorable during the 2 following years, particularly in 1931 when the eastern and southeastern regions of the Union were visited once again by the drought. The resistance of Russian agriculture to unfavorable climatic conditions, which had never been very strong, as evidenced by the recurring crop failures and famines, was greatly weakened by the reorganization just experienced. The liquidation of the kulaks had eliminated some of the most successful farmers among the peasants. Managerial ability, the need for which was increased many fold in the transition from small- to large-scale types of farming, was naturally scarce.

The situation was greatly aggravated by a severe shortage of draft power. The number of horses (the principal Russian draft animal) which, like all livestock, declined sharply during the years of revolution and civil war, recovered rapidly during the "Nep" period of 1922-1929. In

the latter year, however, the number was still below the prerevolutionary figure, and many holdings lacked horses. (See table on page 27.)

With the collectivization campaign of 1929-30, a new catastrophic decline ensued. The peasants, who were being liquidated as kulaks or who joined collective farms, were destroying their livestock, including horses, on a large scale. The forage situation was unsatisfactory and there was the further handicap of indifferent or poor care of animals by the collectivized peasants. The latter "having ceded his horse to the kolkhoz did not always consider it his own, as well as that of the kolkhoz, and realize that he should take care of it just as when it was his own." a/ As a result, the number of draft horses decreased continuously and by 1932 was 30 percent below 1929. This reduction was only partly offset by the increased number of tractors.

Inefficient management and unwieldiness of many of the new farm units, shortage of draft power, and lack of incentive for the peasant to work under the new conditions combined to affect adversely the character of the field work and to accentuate the unfavorable influence of climatic conditions. Chronically late seedings extending far beyond the optimum period with consequent detrimental effect on yields, weeds which became a veritable scourge during the early years of collectivization and have been causing much difficulty ever since, delayed and inefficient harvesting, and grain left lying in the fields unbound for a considerable length of time were some of the aspects of poor farming criticized time and again in the Soviet press and speeches of officials during the early thirties. Naturally, yields of most crops in 1931 and 1932 were very low.

The total grain acreage, which continuously increased between 1923 and 1931 except for one year, was reduced from 258,000,000 acres in 1931 to 246,000,000 in 1932, notwithstanding the fact that the Five-Year Plan called for a minimum of 277,000,000 acres under grain in the latter year. It is true that the collective and state farms increased the area sown, but this increase did not offset the decrease by individual farmers.

Grain production, the increase of which was one of the major objectives of the socialist reorganization of agriculture, actually decreased with low yields and smaller acreage. The total grain crop in 1931 was not only 17 percent below the large 1930 outturn but also smaller than the crop in any of the preceding years since 1924. Though in 1930 Russian grain production for the first time exceeded what the Soviet statisticians consider the "normal" 1913 crop, in 1931 it again dropped 13 percent below. (See table on page 25.) Population, however, had increased 17 percent between January 1, 1914, and July 1, 1931. In 1932 the outturn of all cereals was slightly larger than in 1931, but the combined production of the two principal food grains, rye and wheat, was below the

a/ V. Molotov, Chairman of the Council of Peoples Commissars of U.S.S.R., in a speech reported in *Ekonicheskaiia Gizn*, January 29, 1933.

small 1931 figure. The statistical position of cereals in 1931 and 1932 did not augur well for the national food supply.

For the rural population, it is not only the size of the crop that matters but also the share of it which remains after meeting the State levies. Although Government procurements or collections were legally not compulsory prior to 1933-34, actually they differed little from requisitions, since the peasants were forced to part with their grain at fixed prices far below those prevailing in the free market and were paid in currency rapidly depreciating in value.

With increased grain requirements of the Government, which assumed responsibility for feeding the growing industrial population during the heyday of the Five-Year Plan, a/ grain procurements were mounting regardless of the size of the crop. Thus, although the 1929 crop was slightly lower than that of 1928, the quantity of grain procured by the Government increased by nearly 50 percent. The crop of 1930 was 16 percent above that of 1929, but procurements were 38 percent higher. The crop of 1931 was 17 percent below that of 1930, but procurements increased 3 percent. In 1932 procurements declined to about 20,700,000 tons, or 27 percent of the crop, from the preceding year's peak of over 25,000,000 tons, or a third of the crop. It was still, however, the largest quantity of grain, both absolutely and relatively, taken in any year except 1931. As a matter of fact, the reduced Government plan for collective and individual peasant farms issued in the spring of 1932 called for delivery of even larger quantities of grain than were actually made.

Not only were the quantities procured large, but their distribution as between different regions and kolkhozy was admittedly faulty. The Soviet spokesmen frequently criticized the "mechanical" distribution of the procuring plan, which "failed to take into account the situation in individual regions and collective farms." As a result, "One collective would receive too large a quota for delivery of grain and another too small. Many districts were given obviously absurd plans (quotas), which were changed several times", according to a report of S. Kossior, Secretary of the Ukrainian Communist Party, presented at the Third Ukrainian Party Conference in July 1932. b/ Moreover, a collective farm and even a whole district after fulfilling the plan would be given an additional plan, sometimes several in succession. c/

The continuous large procurements year in and year out deprived the peasants of reserves which they had been accustomed to accumulate as

a/ See "The Abolition of the Bread-card System in the Soviet Union", Foreign Crops and Markets, January 28, 1935.

b/ Pravda, July 9, 1932.

c/ A. Sarkis, Planovoe Khoziastvo, No. 4, 1932; Otto Schiller, Die Krise der Socialistischen Landwirtschaft in der Sowjetunion, Berlin, 1933, p. 7.

an insurance against poor crops. As a result, a serious food and feed shortage developed, which finally forced the Government in the spring of 1932 to offer relief in the form of loans. These loans were extended only to collective and state farms in the Volga and Asiatic regions affected by the drought. Food stringency, however, was not confined to these regions. Its existence, for instance, in the Ukraine in the summer of 1932 was acknowledged by no less an authority than V. M. Molotov, the Chairman of the Council of Peoples Commissars of U.S.S.R., who attributed the food shortage to mistakes committed during the grain procuring campaign. a/ It goes without saying that individual peasant farmers were not included in the relief scheme and suffered severely.

That there was a serious food shortage in the villages in 1931 and 1932 was also confirmed by the increasing number of thefts of grain, particularly the development of a new profession of so-called "barbers" cutting off and collecting the ears of grain in the fields. Consequently there was required an elaborate system of protection of the fields, for which in many sections children were mobilized. Great difficulties were therefore experienced by the Government in its effort to obtain the grain from the peasants. In the North Caucasus area, especially, the struggle of the Government with the local Cossack population assumed a violent character with mass deportations used as a weapon against the recalcitrant Cossacks.

The usual official explanation, however, attributed these difficulties not to large procurements in the face of short crops (due in part certainly to poor work of the peasants lacking the necessary incentives) but to "fragments of the shattered kulak class" inciting the peasants to sabotage, to the incompetence of officials in charge, and to the speculative instincts of the peasants anxious to sell grain privately at much higher prices.

Naturally the food shortage could not but increase the disappointment and bitterness of the peasants, who had been promised a more abundant life with collectivization. The peasants reacted, therefore, by giving the minimum of their time and energy to collective farming and by concentrating on the cultivation of their own little patches of land near the farmstead, or by leaving the village altogether, often to swell the ranks of the so-called "fluid", migratory population, which assumed serious proportions by 1932. The spontaneous strike of the peasants, however, did not improve the food situation and, if anything, made it worse. The food shortage reached a climax with a devastating famine during the winter and spring of 1932-33, which affected a large area of the Soviet Union and took a heavy toll of human life.

Not only the grain crops, but likewise the so-called technical or industrial crops (cotton, sugar beets, flax, sunflower seed, to mention

a/ Pravda, July 8, 1932. See also W. Ladejinsky, "Collectivization of Agriculture in the Soviet Union", Political Science Quarterly, June 1934.

the principal ones), did not fare well. Considerable increase of acreage was characteristic of these crops during the "Nep" period, and in 1928 they constituted 7.6 percent of the total Russian acreage as against 4.3 percent in 1913. After 1928 another large acreage increase took place, particularly in 1930 and 1931. The combined area under technical crops reached 37,000,000 acres by 1932, constituting 11.1 percent of total crop area and exceeding by 10,000,000 acres the goal set by the first Five-Year Plan. This in itself could be regarded as a sign of progress, indicating a tendency toward intensification of agriculture that is much needed in a country like Russia, which has long been suffering from agrarian over-population. a/ When we turn from acreage figures to yields, however, we discover a much less optimistic picture. Yields not only failed to reach the figures of the Plan but were lower, as a rule, in 1931 and 1932 than during the immediately preceding years. This fact is not surprising, inasmuch as the more intensive technical crops require considerably greater care and labor than cereals, while the incentives for the peasants to work were no greater, or even less, especially with the growing food scarcity. As a result of low yields, production of technical crops increased proportionately much less than the acreage. Whereas the acreage increased nearly 70 percent, the aggregate output, measured in 1926-27 prices, increased only 25 percent between 1929 and 1932.

By far the greatest losses, however, were suffered in livestock. The disastrous decline in the number of draft animals has been mentioned. Equally or even more serious conditions prevailed in other branches of animal husbandry. Between 1928 and 1932 the number of cattle decreased by 42 percent; sheep and goats by 64.5 percent, and hogs by 55 percent. Thus, all gains of the recovery from the previous crisis of the Russian livestock industry (1917-1922), which took place during the "Nep" years of 1923-1928, were completely wiped out. (See table on page 27.) An acute shortage of animal products was an inevitable consequence.

The agricultural crisis involved not only the collective farms, which had to meet the passive or active resistance of the recently independent small peasant farmers constituting the membership. State farms, considered a truly socialist type of enterprise, "models of large-scale farming" and "schools of new technique" for the peasants to emulate, likewise disappointed the high hopes placed in them. It is true that the new large mechanized grain farms, devoted principally to spring wheat production on the unbroken land of the semiarid eastern and southeastern regions, increased in number from 55 at the end of 1929 to 228 at the end of 1932. The total area increased during the same period from 12,500,000 to 21,700,000 acres and the sown acreage from less than 400,000 to more than 11,200,000 acres. The number of tractors increased from less than 3,000 to over 22,600 and the number of combines from 45 to nearly 11,500. Huge capital investment was made in these farms, but the output was much

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a/ Compare V. P. Timoshenko, Agricultural Russia and the Wheat Problem, 1932.

below the original expectation. Instead of the 1,700,000 to 1,800,000 short tons, which, it was hoped on their organization in 1928, the state grain farms would provide in 4 or 5 years, they actually delivered 1,327,000 tons in 1932 and 1,093,000 tons in 1933.

The climatic conditions under which the state grain farms have to operate are difficult. Most of the farms are situated in the semiarid zone with a small and unstable precipitation (16 inches and less), recurring droughts, and a severe winter restricting the growth of winter crops in many regions. Moreover, the land of the state grain farms is, to say the least, not of the best quality and a great portion of it was weedy from the start. a/ Such conditions would have taxed the strength of the most efficient and well-managed organization.

It appears, however, that the state farms were neither efficiently organized nor well-managed units. Everything was staked on the tractor, the large size of the farm unit, which in the early stage of organization was overemphasized, and a single crop (usually spring wheat) system. b/ In the "chase" for more acres, soil management and other aspects of scientific or even simply good farming were, for the most part, completely disregarded. A scarcity of trained managerial personnel, a shortage and excessive turnover of specialists and labor due to unsatisfactory living conditions, pilfering on a large scale, and, last but not least, a bureaucratic and highly centralized administration, which applied the same standards and methods to a farm in Siberia as to one in the Caucasus, completed the picture. c/ In the state farms, which were designed to serve as examples to the peasants of efficient large-scale farming, there appeared, often in an exaggerated form, all the vices of collectivized agriculture - untimely and delayed sowings, poor field work, abundance of weeds which greatly hampered the work of the combines, and inefficient harvesting with resulting great losses in crops. These accounted for the poor yields and low outturn of the state grain farms.

The scathing criticisms heaped upon the grain and other state farms by the Government in a decree of November 27, 1931, show how far these

a/ M. V. Chesunov, Socialist Reconstruction of Agriculture, No. 3, 1931.

b/ Of the 174 state grain farms at the beginning of 1931, 127 had an area of more than 124,000 acres each, 10 an area of 371,000 to 494,000 acres, and 4 had exceeded 494,000 acres. Ibid.

c/ Numerous examples and supporting evidence for the statements above may be adduced from the proceedings of a conference of managers and officials of state grain farms held early in 1931, published under the title (translated) of "Organization of Large Socialist Grain Farms", 1931. See also T. A. Jurkin (at one time a Commissar of State Grain and Livestock Farms), "To Prepare Well for the Spring and to Fulfill the Obligations of the State Farms to the State", Moscow, 1933; also an article by the same author in Socialist Reconstruction of Agriculture, No. 2, 1932.

farms fell below the original expectations of their organizers. The decree spoke of the "crying inefficiency and mismanagement" and the "criminal attitude toward state property", of "shamefully large losses in harvesting, threshing, and transportation of the crop", and of the "entirely unsatisfactory cultivation of the soil and failure to utilize the large technical equipment of the state farms to increase yields." It was, however, the failure of the state farms to deliver grain according to plan that provoked special condemnation by the Government. The Chairman of the State Grain Managing Trust was dismissed. Many farm managers were also dismissed or even more severely punished during the next 2 years. Notwithstanding these strong measures, even greater difficulties were experienced by Soviet authorities in extracting the grain quotas from the state farms than from the peasants.

The failure of the grain farms to live up to original expectations led to the realization on the part of the Soviet leaders that these farms were top-heavy and unwieldy and too narrowly specialized. Since 1931, therefore, stress has been laid on subdivision of the grain farms into more manageable units, on diversification, and on scientific farming instead of on mere size and mechanization.

The sown area of these farms decreased from the peak of 11,215,000 acres in 1932 to 7,977,000 acres in 1933 and remained around this level in 1934 and 1935. The average sown area per farm decreased from a peak of 59,000 acres in 1931 to 23,000 acres in 1934. Not only were entire state grain farms transformed into smaller units, but the branches (*otdelenie*) into which each state farm is divided have acquired greater significance in the scheme of organization and management of these farms.

In the distribution of the acreage of state grain farms between different crops, the increasing proportion of winter crops (especially winter wheat and rye) is of interest. Whereas in 1930 winter crops constituted 14 percent of total acreage, in 1933 and 1934 they were 30 and 29 percent, respectively. Spring wheat, however, has remained the predominant crop, accounting in 1934 for 47 percent of the total acreage. Another interesting departure from the original idea was the introduction of livestock on state grain farms. Until 1932 there was no livestock on these farms. In 1934 they had 132,800 head of cattle, 15,000 hogs, 145,400 sheep and goats, and 31,600 horses.

When the livestock situation became acute in 1930, the Government, adopting the same expedient that it had employed earlier to combat the grain crisis, resorted to the organization of special large state livestock farms: dairy and meat farms, hog farms, and sheep farms. These farms were supplied by the Government with livestock, confiscated or procured, from the peasants. a/ By the end of 1931 there were over 1,000 state livestock

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a/ E. Preobraghensky, Planning Economy, No. 8-9, 1934.

farms with more than 2,500,000 head of cattle, nearly 900,000 hogs, and about 4,600,000 sheep and goats. These farms also made a poor showing, judging from the bitter denunciation of the Government Decree of March 31, 1932, which spoke of "inefficiency and complete lack of organization of the process of production, entirely unsatisfactory care of the animals, excessive mortality of young animals, large percentage of barrenness and entirely insufficient breeding, and poor condition of the livestock", and so on in the same vein. In view of the general scarcity of feedstuffs, insufficient production by these farms of feedstuffs for their own use was another unsatisfactory feature of their organization. Many of the managers of state livestock farms were dismissed and prosecuted. The large farms were ordered to be subdivided, no additional cattle or hogs were provided them by the state, and they were required to concentrate on the breeding of their existing stock.

Grain and livestock state farms in 1932 accounted for more than half of the crop area and livestock on all state farms. Since the autumn of 1932, the grain and livestock state farms have been managed by a special department of the Federal Government, the Commissariat of Grain and Livestock State Farms of U.S.S.R.

While improvement was recorded in the work of the state grain and livestock farms, particularly in 1935, official criticism continued to be heaped upon them. The fact that these farms are causing losses to the Treasury seems to be particularly stressed. Thus, the Commissar of State Grain and Livestock Farms, reporting to the Council of Peoples Commissars of U.S.S.R. on September 8, 1936, enumerated various defects in the work of the farms and concluded by saying that, as a result, "state farms show considerable losses." a/

There has been organized also a great variety of other state farms: seed farms, various animal breeding farms, cotton farms, sugar beet farms, rice farms, etc., managed by various Government departments, principally the Federal Commissariat of Agriculture and the Commissariat of Food Industries. b/ These numerous types of state farms, however, present either no new problems of large-scale organization and management or special problems which cannot be treated within the compass of this article.

#### Recovery

Unsatisfactory as was the state farm situation, the center of gravity of the agricultural crisis was in the peasant sector, which in 1932 accounted for 90 percent of the total crop area (of which 68 percent was in

a/ Izvestiia, September 1936. b/ There may also be mentioned the so-called ors (plural orsy), or farms organized by the various factories during the food shortage with a view to producing foodstuffs for the workers.

collective farms) as against only 10 percent in state farms. Many of the measures adopted to improve the critical agrarian situation were frankly coercive, like the famous law of August 7, 1932, which provided capital punishment or 10 years' imprisonment in a concentration camp (without the application of amnesty) for offenses against property of the collectives, including crops in the fields. Special political departments of the machine-tractor stations and state farms were created in 1933 and staffed by trustworthy Party members to act as 'the Party Eye and controlling organ' in the collective and state farms and to execute Soviet policy in the countryside.

Allied with force was the potent strike-breaking agency of hunger. Whether the famine of 1932-33 was an "instrument of national policy", as claimed by W. H. Chamberlin, or largely a self-inflicted injury caused by peasants' sabotage, as Louis Fischer maintains, <sup>a/</sup> there can hardly be any doubt that the terrible ordeal taught the peasants the futility of resistance to the Government and the survival value of a more cooperative attitude.

The Bolsheviks, however, though not hesitating to apply force whenever they deemed it advisable, have sought during the past few years to confine its use within certain limits and temper it by an appeal to economic incentives. This has involved some concessions to individualism, but on a much more limited scale than in 1921 when the "Nep" was introduced and without impairing in any essential respect the new collective system of agriculture.

The foremost step in the new direction, just as in 1921, was the replacement of unlimited requisitions of farm products, which had aroused such an intense hostility on the part of the peasantry, by a specific tax in kind. By fixing definitely in 1933 the quantities of grain, meat, etc., which the collective farm or the individual farmer had to deliver to the State (at a very low fixed price), and by doing away with the evil of repeated demands of Government collectors, the peasants were assured that whatever they produced in excess of the tax they could call their own. They were permitted, after the regional obligations to the State were settled, to sell the surplus on the local private market, which, however, was greatly restricted by the ban on the middleman; or they could barter their grain for manufactured goods supplied by the Government through the village cooperatives. It is true that the original tax rates were too high. The 1933 grain tax in the leading grain regions amounted in terms of the 1928-1932 average yields to more than a third of the outturn of kolkhozy

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<sup>a/</sup> See W. H. Chamberlin, "Russia - Without Benefit of Censor", Christian Science Monitor, May 29, 1934; Louis Fischer, "Soviet Journey", New York; also letters of W. H. Chamberlin and Louis Fischer to The Nation, May 29, 1935.

not assisted by machine-tractor stations. a/ In subsequent years, however, as the Government was able to obtain larger quantities of grain from other sources, the tax was gradually decreased.

More recently, with a view to stimulating production, there was adopted a system of higher prices for delivery of farm products to the State in excess of the quotas. Prices graduated according to the quantity delivered were first introduced in the case of technical crops, like sugar beets and cotton, and in 1936 extended to cereals.

Another factor which tended to increase productivity was the differentiation of payment for work according to skill and results achieved. Thus, by a decree of the Commissariat of Agriculture on February 28, 1933, seven categories of labor, differing in skill, were established on the collective farms. Payment for a daily task or norm was set from one-half to two "labor days", a/ with a reduction for inferior quality of work or nonexecution of the norm and an increase for exceeding the norm. Furthermore, the total output obtained by the different units or brigades into which the collective farm was divided was also to be taken into account in the remuneration of the members of such brigades, increasing where yields were above the average, and vice versa. Though many of the refinements and even basic provisions of this complicated system may not be adhered to in practice, the Government has certainly been bent on stamping out the straight day-labor method of payment, not to speak of the more equal methods of income distribution calculated to avoid wide differences in workers' earnings.

The Government moreover took steps to translate into reality the modest individualistic features that theoretically have always been inherent in the artel form of collective farming. Stalin pointed out at the Seventeenth Party Congress in January 1934 that the artel is supposed to combine and adjust the personal interests of the individual members and those of the kolkhoz as a whole. In practical terms, this meant that a peasant family joining the artel retained its farmstead with a small plot of land for a vegetable garden, orchard, etc., a cow, a few pigs and sheep, and an unlimited number of poultry. These rights of the peasants in collectives have been especially emphasized, however, only since the

a/ Collective farms assisted by state-owned machine-tractor stations, which are paid in kind, are taxed less than those unassisted, while individual peasant farmers pay the highest tax. b/ A "labor day" is the unit which serves as a basis for the distribution of the income of collective farms, whether in kind or in monetary form. To illustrate, in a Kolkhoz Telman, in the Odessa region (composed of German colonists and apparently a kolkhoz of the better type), visited by the writer, 126 working members, including 69 women, earned in 1934 a total of 27,000 "labor days." Each "labor day" was worth 1.5 rubles, 8 kilos (17.6 pounds) of grain, 5 kilos (11 pounds) of grapes, and 8 kilos (17.6 pounds) of potatoes and vegetables.

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adoption in February 1935 of the new model artel charter. a/ The charter also placed a limit on the appropriation of funds for capital purposes and for administrative expenditures, both of which were excessive in a number of kolkhozy to the detriment of the income of individual members.

The new charter not only sought to improve the economic position of collectivized peasants; it also aimed to provide for a greater security of land tenure of the kolkhozy and to restore a measure of self-government, which theoretically they had always possessed but which, in practice, was nullified by the bureaucratic interference and encroachment of Soviet officials. The collective farms were to hold the land they occupied in perpetuity; and it was provided that a title deed was to be issued to each kolkhoz after its land was surveyed and definitely fixed so as not to permit any reduction of its area such as had frequently occurred before. Significant also was the insistence on the election of the officers of a kolkhoz by its own members, a principle which formerly had been honored more in its breach than in its observance by the authorities, who had appointed and removed such officials at will. Likewise of importance was the introduction of safeguards against arbitrary and easy expulsions from collectives, which had been greatly abused notwithstanding the grave economic consequences for the expelled peasants.

Even if all the requirements of the charter are strictly adhered to, the freedom of the kolkhozy is circumscribed by the fact that they must function within a system of compulsory national planned economy. The officials responsible for the execution of seed supply, sowing, yield, breeding, and other plans, must necessarily wield a large measure of control over the collective farms. Actually the Soviet press in 1935 and 1936 was full of reports of the flouting by local authorities of various provisions of the charter. The very fact, however, that the Government-controlled press is waging a fight against such violations is an evidence of the determination of the Administration in Moscow to implement the 1935 charter, the principles of which are also embodied in the 1936 Constitution of the U.S.S.R. The hand that grants may also withdraw, however, and it remains to be seen whether the mildly liberal policy represented by the charter will continue or give way to a stronger collectivist line.

Two other important steps taken by the Government toward strengthening of the kolkhozy, one indirectly and the other directly, must be

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a/ Even earlier, in 1933, in order to help peasant families in the kolkhozy who had no cattle in individual possession, the Government began to take steps to enable such families to acquire calves on favorable terms. In June 1935, according to official figures, there were still 26.3 percent of peasant households in collectives without cattle and 39.5 percent without cows. According to the sample census of 1927 (prior to collectivization) 23.8 percent of the peasant households had no cows. (Statistical Abstract of U.S.S.R. for 1928, p. 145.)

mentioned. The Government addressed itself once more to the problem of the distribution of industrial goods in the countryside. One aspect of this problem lay in the poor marketing service, which the Government sought to remedy through the reorganization of the work of consumers' cooperatives (actually an arm of the Soviet State) by the decree of September 29, 1935. Much more serious, however, is the chronic shortage of industrial consumers' goods, which was responsible for a great deal of the maladjustment in the Soviet economic situation. This shortage could not but affect adversely the willingness of the peasants in the kolkhozy to put forth their best efforts and to increase production. It was claimed recently by a Soviet spokesman, commenting on the results of the reorganization of the rural retail system, that the sale of industrial goods in the villages in 1936 increased considerably compared with that of the preceding year. a/

The other step taken by the Government was to increase the land area of the kolkhozy at the expense of state farms. This process of land redistribution began late in 1935 and continued through 1936. Some of this land was apparently not utilized productively by state farms; but a part of it (how large a part cannot be determined at present) was utilized, as may be seen from the fact that entire sovkhozy were ordered to be liquidated and the collective farms given an opportunity to acquire their livestock, buildings, etc., on favorable terms. This new move on the part of the Government has a double significance. On the one hand, it tends to level some of the gross inequalities which developed in the land holdings of different kolkhozy. b/ On the other hand, the transfer of this land to the kolkhozy raises a question of whether it is not really the opening wedge of disintegration of the system of state farming as distinguished from the present collective farming. No definite answer can be given to this query at the present juncture, but according to the authoritative "Socialist Agriculture" quoted above, the liquidation operations are confined at present to the food farms of the factories (the orsy), which are not deemed essential with the food shortage over; to the farms of various Government institutions; and to the smaller state farms which are not considered efficient.

The various measures, policies, and conditions described above undoubtedly succeeded in modifying the attitude of the peasants and in reconciling them toward the kolkhozy, at least in the pragmatic sense that they became willing to work the new instrument of collective farming and make the best of it. This change became apparent in 1933 after the famine and was cemented by the better harvest of that year, to which the more

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a/ Zelenskii, in Pravda and Sovetskaia Torgovlia, September 29, 1936.

b/ Some kolkhozy have as much as 20 acres of land for each member capable of working, while others have 5 acres or less. Socialist Agriculture, July 15, 1936.

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favorable climatic conditions materially contributed. Thus the weather, which helped to aggravate the crisis, also assisted in bringing about a recovery. When in 1934 a serious drought once more affected large areas of the Union, the peasants worked hard to save the crops and received enthusiastic praise from Soviet officials in those very areas of Southern Russia where only 2 years earlier the conflict with the Government had reached its greatest intensity.

Increased mechanization, facilitated by the elimination of the strip system of farming, greatly aided in overcoming another important phase of the agricultural crisis, the catastrophic decline of the animal draft power, touched upon before. This decline continued until 1934, and altogether between 1929 and 1934 Soviet agriculture lost 19,000,000 horses, or 55 percent of its total horse population. The losses thus exceeded those of the years of revolution, civil war, and famine, 1917-1921, when the number of horses declined by approximately 12,000,000.

Serious as this shortage of draft power was, especially during the early years of collectivization, it would have had even more disastrous consequences had it not been for the tractor, a gift of American inventiveness which one hears gratefully acknowledged wherever one goes in rural Russia. The Government was no longer entirely helpless in the face of the terrific loss of draft animals. In fact, conditions have steadily improved from year to year with the added number of tractors and their better utilization. (See table on page 27.) The Russians, who originally imported tractors from the United States, have learned to manufacture this machine at home, producing more than 100,000 in 1935. While in 1928 only 1.4 percent of the total supply of draft power in Russian agriculture was mechanized, and in 1933, 17.6 percent, in 1934 the share of mechanical power reached 25.4 percent and in 1935, 33.1 percent (no account being taken of automobiles and trucks).

The utilization of tractors was at first notoriously inefficient. Breakdowns and stoppages were frequent because of a lack of experienced drivers, shortages of repair parts and gasoline, and general mismanagement. A distinct progress in tractor management, however, has taken place in recent years. The impression a visitor to Russian agricultural regions now acquires is that physically and technically (leaving entirely aside the economics of the case) the tractor has become acclimatized in the Soviet Union. This is borne out by the figures of acreage worked per tractor in MTS, which exceeded 1,000 acres (plowing equivalent) per 15-horsepower tractor in 1935, a substantial achievement. Some difficulties were experienced in 1936 with the use of the more powerful track-laying tractors, the number of which is increasing in Soviet agriculture; but, as in the case of wheel tractors, these difficulties will probably be overcome.

Another product of American ingenuity, the combined harvester-thresher, or combine, has also been finding increased application in

Soviet agriculture. In 1930 there were less than 2,000 combines, while at the end of 1935 they numbered over 50,000. In the latter year, combines harvested about 9 percent of the grain area in collective farms and 97 percent in state grain farms. The greatest advance in the use of combines, however, was made in 1936, when it was expected that they would harvest over one-fifth of the grain area in collective farms. Great hopes are pinned on the combine as a means of reducing the heavy harvesting losses that have been thwarting the efforts of the Bolsheviks to increase grain production.

The story of the introduction and utilization of the combine in the Soviet Union recapitulates that of the tractor. The first combines were imported from the United States. Domestic manufacturings of this machine began in 1930. In 1935, more than 22,000 were manufactured, and the Plan for 1936 provided for an output of 61,000. What was said above concerning inefficiency in the utilization of tractors can be repeated with respect to combines, which, like the tractors, passed through a long spell of "infant diseases." The abundance of weeds has been a serious obstacle to the efficient use of the combine. There existed also a certain reluctance and prejudice against the use of this machine in various sections, to which the requirement of payments in kind for this service seems to have contributed materially.

The inexperience of combine operators and the lack of an incentive for better work also were factors which adversely affected the performance of the machine. A very significant improvement took place in 1935, however, attributed largely to a new system of payment to the operators. This was steeply graduated according to the results obtained and made it possible for some of the best operators to earn as much as 5,000 rubles or more <sup>a/</sup> during a relatively short season, while the average annual wage of agricultural workers on state farms or machine-tractor stations was about 1,500 rubles in 1935. In 1933 a combine in MTS harvested an average of 174 acres; in 1934, 308 acres; and in 1935, 640 acres.

Tractors and combines not only facilitate agricultural production in the Soviet Union but help the Government to control it through the instrumentality of the machine-tractor stations. At the end of 1935, there were 4,376 machine-tractor stations having over 260,000 tractors,

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<sup>a/</sup> Plan, No. 6, 1936. The ruble formerly was nominally equal to 51 gold cents, United States currency, at the legal par of exchange. Since November 1935 the legal value of the ruble has been fixed at approximately 20 cents, United States currency. This, however, is a purely nominal value of the ruble (which is not quoted in foreign markets) and does not correspond with its real purchasing power. It is a well-known fact that when the so-called Torgsin stores, accepting payment exclusively in foreign currency, were operating prior to 1936, 30 and more rubles would be paid privately for one American dollar.

29,523 combines, 87,904 threshing machines, and 28,321 trucks. These machine-tractor stations served more than one-half of all collective farms with an acreage of over 70 percent of the total sown area in collectives. The payments to machine-tractor stations for their services (which are made in kind only and provide an increasingly important source of Government receipts from agriculture) increased in the case of grain from 11.6 percent of the total Government procurements in 1933 to 20 percent in 1935. Thus mechanization and increased Government procurements of farm products go hand in hand.

With the recent emphasis on the problem of cost and profitability of the various Soviet enterprises, the financial side of the work of the machine-tractor station has come in for a great deal of criticism. Failure to live within the budget, high operating costs, excessive delay in payment of wages to employees, and other shortcomings have frequently been censured in Soviet publications.

The general improvement in the condition of Russian agriculture has been reflected first of all in more timely sowings. Whereas, for instance, 14 to 16 percent of the acreage was sown by May 1 in 1931, 28 percent in 1933, and 38 percent in 1934, 55 percent in 1935 was seeded on that date. Because of unfavorable weather conditions in the spring of 1936, only 33 percent of the acreage was seeded by May 1, but subsequent sowings made great headway. a/ June sowings, which included more than one-fifth of the acreage in 1930-1932, decreased considerably in 1933-1934 and were insignificant in 1935 and 1936. An improvement also took place in autumn sowings, which were nearly 90 percent complete by October 1 in 1935 as compared with about 70-75 percent during the years 1930-1933 and 86 percent in 1934.

In an effort to increase crop yields, which was proclaimed an official policy of the Soviet Government by a decree of September 29, 1932, great stress has been laid on what the Russians call "agrotechnika", best translated as "scientific farming." On the basis of a study of 35 kolkhozy of the Ukraine, it is reported that, of the increased total expenditure of labor between 1932 and 1934, as much as 75 to 80, and sometimes 100, percent was related to this improvement of farming methods. b/

An important place in the effort devoted to "agrotechnika" is occupied by the weeding of the field. Forty-two percent of the small grain area was weeded in 1933, 63 percent in 1934; and, according to preliminary figures, 73 percent in 1935. This labor may be viewed largely as a penalty paid for the past sins of neglect and mismanagement. In other directions, however, a genuine advance has been made. The autumn-plowed area, for instance, which tends to relieve the heavy load in the spring and improve yields, increased from 1932 through 1935 by 46 percent. The

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a/ See Foreign Crops and Markets, June 8, 1936. b/ Y. Leibman, "The Labor Resources of the Kolkhozy", Bolshevik, August 1936.

summer fallow area, so important under Russian climatic conditions as a means of conserving moisture, was 46 percent greater in 1935 than in 1932. Moreover, while in 1932 only a little more than 2 percent of the total fallow area was prepared in May and earlier, in 1935 the share increased to 47 percent, and it is the early fallow which is most effective. Increasing attention is given to such progressive practices as shallow plowing of the stubble immediately after the harvest, snow retention to increase the soil moisture supply, seeding with disinfected, specially treated (iarovized) and pedigreed seed, improved crop rotation, protective forest shelter, etc. Similar tendencies are evident now in the field of animal husbandry, which suffered so severely during the crisis. The most promising feature of the Soviet agricultural situation probably is the emphasis placed on the practical application of the results of the theoretical and experimental agricultural science and on the cooperation of research institutes and experiment stations with the kolkhozy. a/

It can hardly be denied that, notwithstanding the progress achieved, particularly since the bleak years 1931 and 1932, there are yet many shortcomings and a great deal of waste and inefficiency in the field work of the collective and state farms. Labor is far from being efficiently utilized, and consequently more workers are required than are justified at a given level of farm technique. A study of 10 Ukrainian kolkhozy in 1934 revealed that the actual number of workers occupied exceeded by 6 to 42 percent the number that would be required during the peak of the season under an efficient organization, assuming no change in farm technique or the time schedule of field work, neither of which, however, was considered ideal. b/ The weakest spot in the Russian agricultural situation, however, has been harvesting, which, according to the testimony of Soviet officials themselves, showed less improvement than sowings and other field operations, with consequent large crop losses. c/

#### The Results of Recovery

So far we have dwelt on what may be called the external aspects of the recovery of Soviet agriculture. The real test of recovery, however, since the crisis was patently that of underproduction, is the growth of the volume of farm output. This test must first of all be applied to grain, which is pivotal in the Russian agricultural economy. Before considering grain production, it is well to take a glance at the acreage

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a/ The writer, visiting a fruit experiment farm in Omsk, Siberia, met a rather numerous delegation of peasants from various collective farms, who had come to study the methods of fruit growing. It is interesting that some of the more advanced kolkhozy themselves participate in experiment work through their own laboratories. Such activities, if properly organized, are bound to be very fruitful in raising the level of farming.

b/ Leibman, op. cit. c/ See the official Soviet publication, Plan, No. 10, 1935, No. 12, 1935, and No. 20, 1935.

figures presented in the table on page 25 . The grain acreage after the decline in 1932, mentioned previously, increased again in 1933 and 1934, decreasing somewhat in 1935. The area for the 1936 harvest apparently did not differ much from that of 1935. The 1935 acreage was 12 percent above that of 1928 but only 1.6 percent above that of 1930. It was still 8 percent below the minimum goal set by the first Five-Year Plan for 1932. The years 1933 to 1936, therefore, were not characterized by the expansion of grain acreage that marked the decade of 1922-1931, including the years of "Nep" and of early collectivization. Although the aggregate grain acreage has become fairly stable during the last 3 years, the important wheat acreage continued to expand after the decline of 1932 and 1933 and reached in 1935 and again in 1936 new record figures. a/ Moreover, the higher-yielding winter wheat is gaining ground, although spring wheat still accounted in 1935 for two-thirds of the total wheat acreage. Up to 1930 the winter rye acreage (which was more than double that of the 1930 winter wheat area) was also increasing, but since that year it has declined continuously. The combined winter wheat and winter rye acreage, therefore, was almost 8 percent less in 1935 than in 1930.

When we finally approach the crucial question of production, our inquiry is confronted at the outset with a serious statistical stumbling block, caused by the fact that official estimates of the grain crop for the years prior to and since 1933 are not comparable. It appears that the large harvesting losses mentioned previously are not fully reflected in the crop estimates beginning with 1933. Judging from a statement of the head of the State Crop Estimating Commission, b/ only what are considered as technically inevitable or normal losses, not exceeding 10 percent, are deducted from the so-called biological yields, obtained from small samples of the crop still in the field. As a matter of fact, however, losses exceeding 10 percent were reported by Soviet officials and the press.

Not all of the crop losses, now considered as such in the Soviet Union, are losses in a technical sense. Some are accounting losses in the sense that the grain has not entered farm or State storage holdings and has not been duly accounted for. In this category, for instance, is grain (threshed or in the fields) used without proper accounting to feed

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a/ Of interest, from the standpoint of regional distribution, is the extension of wheat cultivation into the more northern regions of the grain deficient consuming or, as it is sometimes called, non-black-soil area. This shift was encouraged by the Government in order to make the section more nearly self-sufficient in the matter of the grain supply. Although the wheat acreage in the northern and north-central regions increased several fold between 1928 and 1935, it still accounted for less than 10 percent of the total 1935 wheat area of the Union.

b/ N. Ossinsky, Izvestiia, September 21, 1933.

animals or poultry; here also belong various forms of grain thefts mentioned earlier. Obviously, all this means no actual diminution of the national food and feed supply, even though what the Russians call "barn" production is decreased. It is possible that figures of strictly "barn" production for the years 1933-1935, if they were published, would underestimate the crop, and therefore lack comparability with the estimates for former years. For a precisely opposite reason, however, the figures actually published since 1933 probably overestimate the crop and are likewise not comparable with those for previous years without a preliminary scaling down.

The extent of this downward adjustment, which undoubtedly varies from year to year and for different cereals, can at best be only guessed at. A reduction of the estimates of the aggregate grain crop yields by 15 percent for 1933 and 10 percent for 1934 and 1935 would seem to be conservative and probably errs, if anything, on the optimistic side. On this basis, as shown in the table on page 25, the situation since 1933 undoubtedly shows considerable improvement over that of the years 1931 and 1932. Even the large 1935 crop, however, was only slightly above the estimated "normal" statistical 1913 crop and much below the actual bumper crop of that year, calculated by Soviet statisticians at more than 103,000,000 short tons. a/ The population, however, has increased much more rapidly than has the grain output, in 1935 being more than 20 percent above the pre-war figure.

Even on the basis of the very optimistic official estimate of 99,000,000 short tons in 1935, the increase of grain production falls short of the increase of population. Moreover, not only the day-to-day food requirements of the growing population have to be covered; but, since the international situation became threatening, first in the East and more recently also in the West, reserve stock has to be built up for military contingencies. It is not surprising that under such conditions Russian grain exports, which before the World War were the largest in the world, should dwindle (with the exception of a few abnormal years like 1930 and 1931) to insignificant proportions, as shown by the table on page 28.

Government procurements, however, from which supplies for the cities and reserves as well as exports must come, increased rapidly after the decline of 1932 and reached a new high record in 1935, both in volume and in speed of delivery. All the grain obtained by the Soviet Government in 1935 from every source, including purchases, totaled 163 percent more than in 1928, while the grain acreage in 1935 was but 12 percent larger and production not quite 11 percent greater on the adjusted basis, and 23 percent larger as officially estimated.

a/ N. Adelung, Planovoe Khoziaistvo, No. 11, 1925.

The grain situation reflects as in a focus the limited character of the recovery which has taken place in Soviet agriculture. The acreage in technical crops, which up to 1932 showed an expansion, has declined continuously since that year. The area decreased from 34,690,000 acres, or 11.1 percent of the total crop area in 1932, to 26,296,000 acres, or 8 percent of the total crop area in 1935. This decline was presumably a result of the Government policy, announced in 1932, of demanding concentration on raising the very low yields which accompanied the large expansion of acreage. As compared with the years 1928-1932, an improvement did take place in the yields of such important crops as sugar beets, cotton, sunflower seed, etc., and some growers established very high records. The yields, however, were below pre-war figures or the figures specified by the First Five-Year Plan.

Improvement also must be recorded during the years 1934-1936 in the livestock situation. Not only was the decline in numbers arrested, but an increase began once more. Nevertheless, in June 1936, the number of horses was still only 50 percent of that in 1928, the number of cattle 80 percent, and of sheep and goats 50 percent. Only hogs showed a gain, amounting to 17 percent.

The progress of the livestock industry hinges to a very large extent on an adequate feed supply, which in turn depends upon increased grain production. The expansion of the technical crop area, such as that of cotton and flax, also depends on grain, since it cannot be undertaken effectively without an adequate food supply for the growers.

In the light of these facts, one can better understand the new slogan coined by Stalin: "Increase grain production during the next 3 or 4 years to 7 or 8 billion poods" (126 to 144 million short tons). This has, in truth, become the central objective of Soviet agriculture.

The new program would tax severely the most efficient agricultural organization operating under the most favorable conditions. The problem is especially difficult for the U.S.S.R. with so large a proportion of the grain area concentrated in the semiarid zone where yields are low and unstable. This point was illustrated in 1936, at the beginning of this new program. A severe drought undoubtedly reduced the total grain crop below the 1935 level, although the reduction would probably have been more serious had it not been for the improvement in farming methods. Even though the goal will probably not be reached 3 years hence, however, the new slogan may be a stimulus toward increased effort and a better organization of Soviet agriculture.

CROP AREA: By types of farms in the Soviet Union,  
1928-1935

Year	Collective farms	State farms	Individual holdings a/	Total
	Million acres	Million acres	Million acres	Million acres
1928 .....	3.4	4.3	271.5	273.2
1929 .....	10.3	5.6	275.8	291.7
1930 .....	94.1	9.7	210.6	314.4
1931 .....	195.1	27.1	114.5	336.7
1932 .....	226.2	33.2	72.8	332.2
1933 .....	231.4	34.9	54.2	320.5
1934 .....	243.5	37.3	44.0	324.8
1935 .....	258.3	40.0	29.8	328.0

Agriculture of U.S.S.R. Yearbook 1935.

a/ Including individual holdings of members of collective farms.

GRAINS: Area for harvest, production, and Government procurements  
in the Soviet Union, 1913 and 1928-1935 a/

Year	Area	Production	Procurements from all sources plus purchases
		Million acres	Million short tons
1913 .....	b/	c/	88.3
1928 .....	227.8		80.8
1929 .....	237.2		79.1
1930 .....	251.5		92.1
1931 .....	258.0		76.3
1932 .....	246.4		77.0
1933 .....	250.9	d/	84.1
1934 .....	258.7	e/	88.7
1935f/....	255.6	e/	89.4

From Agriculture of U.S.S.R. Yearbook 1935 and Plan, No. 10, 1936.

a/ Includes wheat, rye, oats, barley, corn, millet, buckwheat, minor grains, and legumes. b/ The 1913 area corresponding to a "normal" statistical crop of 88.3 million short tons was given in the Soviet official publication, Control Figures of National Economy for 1928-29, as equivalent to 253.8 million acres. This figure was derived by increasing the 1913 acreage for the present territory of U.S.S.R. by 9 percent for underestimation. In the Control Figures for 1929-30 a figure equivalent to 247.6 million acres is given as the 1913 area corresponding to the same "normal" crop. This acreage was derived by increasing the 1913 official figure by 7 percent. In more recent Soviet statistical publications, including the 1935 agricultural yearbook, the adjustment of the 1913 acreage for underestimation was dropped and a figure equivalent to 233 million acres given. The same estimate, however, is carried for the 1913 "normal" crop. c/ "Normal" statistical crop. In the Control Figures of National Economy for 1928-29 a figure equivalent to 89.9 million short tons is given first. Both estimates are arrived at by using the "normal" 1913 yield but with a different correction for overestimation: 9 percent for the higher estimate and 7 percent for the lower. On the subject of correction of pre-war crop estimates, see Timoshenko, op. cit., pp.162-173.) d/ Official estimate reduced by 15 percent. e/ Official estimate reduced by 10 percent. f/ Preliminary.

SPECIFIED TECHNICAL CROPS: Area, yield, and production  
in the Soviet Union, 1913 and 1928-1935

Year	Cotton a/			Sugar beets		
	Area Million acres	Yield per acre Pounds	Production 1,000 bales of 478 lb.	Area Million acres	Yield per acre Short tons	Production 1,000 short tons
1913 . . . . .	1.7	297	b/ 1,058	1.6	7.5	12,015
1928 . . . . .	2.4	234	1,174	1.9	5.9	11,181
1929 . . . . .	2.6	225	1,229	1.9	3.6	6,887
1930 . . . . .	3.9	194	1,587	2.6	6.0	15,453
1931 . . . . .	5.3	157	1,845	3.4	3.9	13,284
1932 . . . . .	5.4	162	1,816	c/ 2.5	2.9	7,233
1933 . . . . .	5.1	178	1,887	3.0	3.3	9,908
1934 . . . . .	4.8	d/ 167	d/ 1,676	2.9	4.3	12,524
1935 e/ . . . . .	4.8	f/ 224	f/ 2,250	3.0	5.9	17,868
Flax fiber						
Area	Production			Sun flower seed		
	Yield per acre Million acres	Pounds	1,000 pounds	Area Million acres	Yield per acre Pounds	Production 1,000 pounds
1913 . . . . .	2.5	290	727,518	---	---	---
1928 . . . . .	3.4	209	705,472	9.6	487	4,695,798
1929 . . . . .	4.0	197	793,656	8.9	434	3,880,096
1930 . . . . .	4.3	224	970,024	8.4	430	3,593,498
1931 . . . . .	5.9	205	1,212,530	11.3	490	5,533,546
1932 . . . . .	6.2	178	1,102,300	13.1	382	5,004,442
1933 . . . . .	5.9	205	1,212,530	9.6	538	5,180,810
1934 . . . . .	5.2	224	1,168,438	8.6	530	4,585,568
1935 e/ . . . . .	5.2	233	1,212,530	8.2	499	4,078,510

Agriculture of U.S.S.R. Yearbook 1935.

a/ Prior to 1930 cotton was grown almost exclusively under irrigation in Russian Central Asia (Turkestan) and Transcaucasia. Since 1930 cotton cultivation has been extended into nonirrigated regions of southern European Russia, which account for nearly one-fifth of the total Soviet acreage. The very low yields in these regions depressed the average yields for the country as a whole. The yields in the irrigated regions, however, during the years 1928-1934 also showed a downward tendency.

b/ The highest pre-revolutionary production was reached in 1915, when the crop was estimated at 1,812,000 bales.

c/ Estimated harvested acreage.

d/ Actual procurements of the Government up to March 1, 1935.

e/ Preliminary.

f/ Unofficial tentative estimate.

LIVESTOCK: Number in the Soviet Union, 1916  
and 1922-1936

Year a/	Horses			Cattle			Sheep and goats		Hogs
	Work horses	Other	Total	Cows	Other	Total	Million head	Million head	Million head
1916 b/.	27.7	8.1	35.8	26.0	34.6	60.6	121.2	20.9	
1922 ...	20.0	4.1	24.1	24.8	21.0	45.8	91.1	12.1	
1923 ...	19.9	4.7	24.6	26.1	26.8	52.9	95.3	12.9	
1924 ...	19.9	5.8	25.7	27.1	31.9	59.0	109.0	22.2	
1925 ...	20.3	6.8	27.1	28.6	33.5	62.1	122.9	21.8	
1926 ...	21.6	7.6	29.2	29.7	35.8	65.5	132.5	21.6	
1927 ...	23.2	8.4	31.6	29.9	38.1	68.0	139.7	23.1	
1928 ...	22.8	10.7	33.5	30.7	39.8	70.5	146.7	26.0	
1929 ...	23.6	11.0	34.6	30.4	36.7	67.1	147.0	20.4	
1930 ...	20.9	9.3	30.2	26.7	25.8	52.5	108.8	13.6	
1931 ...	19.5	6.7	26.2	24.4	23.5	47.9	77.7	14.4	
1932 ...	16.2	3.4	19.6	21.0	19.7	40.7	52.1	11.6	
1933 ...	14.1	2.5	16.6	19.6	18.8	38.4	50.2	12.1	
1934 ...	12.8	2.8	15.6	19.5	22.9	42.4	51.9	17.4	
1935 c/.	12.0	3.9	15.9	20.1	29.2	49.3	61.1	22.6	
1936 c/.	---	---	16.6	22.1	34.4	56.5	73.3	30.4	

Livestock of U.S.S.R. in Figures, by V. P. Nifontov, 1932; Socialist Agriculture of U.S.S.R. Yearbook 1935; Plan, No. 19, 1936. a/ Spring or early summer. b/ Agriculture of U.S.S.R. Yearbook 1935 gives horses 35,100,000; cattle 58,900,000; sheep and goats 115,200,000; and hogs 20,300,000.

c/ Preliminary.

TRACTORS AND COMBINES: Number on farms in the Soviet Union,  
and new tractors supplied, 1928-1936

Year and date	Tractors					Combines a/	
	Tractors on farms		New tractors during year				
	Number	1,000 horse power	Number	1,000 horse power	Percent produced in USSR		
October 1- 1928 ...	26,733	278.1	b/ 9,466	126.0	29.6	---	
1929 ...	34,943	391.4	39,342	634.9	36.0	---	
1930 ...	66,332	926.0	---	---	---	---	
January 1- 1931 ...	72,078	1,003.5	59,130	964.4	52.9	1,700	
1932 ...	125,344	1,850.0	46,086	678.9	100.0	6,400	
1933 ...	148,480	2,225.0	68,738	1,058.3	100.0	14,100	
1934 ...	210,900	3,209.2	87,275	1,545.0	100.0	25,400	
1935 c/	276,427	4,462.8	c/103,063	2,080.2	100.0	32,300	
1936 ...	---	---	---	---	52.100		

Agriculture of U.S.S.R. Yearbook 1935. a/ For 1931 to 1933 figures are only for combines on grain and livestock state farms and machine-tractor stations. Corresponding figures for 1934, 1935, and 1936 are 23,900, 30,600 and 49,000, respectively. b/ Beginning October 1. c/ Preliminary.

## Foreign Agriculture

SPECIFIED CEREALS AND FLOUR: Exports from the Soviet Union,  
1904-5 to 1935-36

July 1 to June 30	Wheat including flour	Rye including flour	Barley	Oats	Corn	Total grain and flour
	Million bushels	Million bushels	Million bushels	Million bushels	Million bushels	Thousand short tons
1904-5.....	190.7	47.1	110.5	120.5	9.2	11,874
1905-6.....	169.9	47.0	107.3	109.9	7.8	10,962
1906-7.....	102.6	42.7	98.3	44.7	26.8	8,095
1907-8.....	67.1	38.0	106.1	30.2	31.6	6,992
1908-9.....	96.4	18.8	150.8	58.1	25.9	8,693
1909-10.....	233.9	31.6	171.1	84.0	19.8	13,907
1910-11.....	233.6	53.0	198.8	112.6	37.8	16,123
1911-12.....	83.7	23.8	146.2	64.4	44.9	8,975
1912-13.....	106.6	26.5	144.8	53.3	19.0	8,800
1913-14.....	170.7	37.4	203.3	39.6	20.7	12,261
1914-15.....	14.1	10.0	15.1	5.8	1.8	1,212
1915-16.....	12.8	12.6	0.3	a/	0.1	747
1916-17.....	10.1	8.2	0.1	a/	0.1	539
1922-23.....	0.6	16.9	3.3	1.8	0.4	606
1923-24.....	21.4	53.8	14.1	9.7	5.3	2,790
1924-25.....	0.4	2.7	3.3	0.2	6.9	360
1925-26.....	26.6	7.2	36.2	1.4	7.5	2,101
1926-27.....	49.3	16.7	20.5	3.7	8.2	2,726
1927-28.....	5.4	6.0	1.4	3.3	1.0	443
1928-29.....	a/	a/	0.0	a/	0.0	b/
1929-30.....	8.7	7.2	24.0	4.3	1.4	1,142
1930-31.....	111.8	29.1	49.8	33.8	2.5	5,972
1931-32.....	71.8	43.3	37.5	14.6	10.9	4,806
1932-33.....	19.7	9.6	16.6	1.7	8.5	1,519
1933-34.....	33.8	5.8	25.9	8.7	5.1	2,080
1934-35.....	4.3	1.2	6.6	9.1	a/	470
1935-36.....	29.7	2.8	29.2	10.4	2.8	1,214

Compiled from official sources. Wheat flour converted to grain on basis of 4.5 bushels equals 1 barrel, rye flour to grain, 6 bushels equals 1 barrel. 1904-5 to 1916-17 and 1925-26 to 1928-29 exports over European frontier including the Caucasian ports of the Black Sea. Other years, all frontiers.

a/ Less than 50,000 bushels. b/ Less than 500 barrels.

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COTTON PRODUCTION  
IN THE STATE OF SAO PAULO, BRAZIL . . .

The rapid expansion of cotton production in the State of Sao Paulo is probably the outstanding development in Brazilian agriculture during the last 5 years. Average production in Sao Paulo was only 46,000 bales annually in the period 1927-28 to 1931-32, equivalent to 9.2 percent of the total average for Brazil of 501,000 bales. By 1935-36 production in Sao Paulo reached a peak of 784,000 bales (second estimate), or 45.6 percent of the national 1,718,000-bale crop. Returns from cotton in recent years have been relatively greater than the returns from the other crops usually grown in Sao Paulo. Expansion in cotton acreage has been largely on new land, of which there is an abundance, but in some sections cotton has replaced other crops.

The State of Sao Paulo, which has gained wide reputation as a coffee-producing state, occupies 95,458 square miles, or approximately 61,093,000 acres, according to the Federal census of 1920. This area is only slightly less than the combined areas of Alabama and Mississippi. Preliminary data from a State census taken in 1934 place land holdings in Sao Paulo at 52,182,000 acres. As will be noted from the following tabulation, the cultivated area in 1933-34 totaled 8,409,106 acres, or only 16.1 percent of the total land holdings in the State:

	<u>Acres</u>
Timberland and brushland.....	19,512,000
Natural and tame pasture land.....	19,939,000
Cultivated land.....	8,409,000
Undesignated use.....	<u>4,322,000</u>
Total land holdings.....	52,182,000

It is probable that part of the area listed as "Undesignated use" in 1933-34 was actually under cultivation, since another census tabulation, showing the use of cultivated land during that year gives a total of 9,604,000 acres under cultivation. Utilization of the cultivated area was given as follows:

	<u>Acres</u>		<u>Acres</u>
Coffee.....	4,712,000	Leans.....	592,000
Corn.....	2,081,000	Sugar cane.....	180,000
Rice.....	831,000	Fruit.....	263,000
Cotton.....	730,000	Other crops.....	<u>215,000</u>
Total cultivated area.....			9,604,000

Large and Rapid Expansion in Cotton Acreage

Coffee occupied 49.1 percent of the cultivated area of the State in 1933-34, corn 21.7 percent, rice 8.6 percent, and cotton 7.6 percent. With the large expansion in cotton production which has taken place since the date of the census, it is quite likely that the acreage devoted to cotton is now in excess of that of corn, and second only to that of coffee.

The amount of timber and brush land being cut and burned expressly to grow cotton, the expanding acreages of cotton on individual farms, the migration of Japanese and other farmers to cotton-growing districts, and the construction of gins and oil mills are some of the outstanding features accompanying cotton expansion in Sao Paulo. In some instances, establishments devoted to coffee for many years have derived as much income from cotton since 1932 as they have from coffee.

No one can study at first hand the resources of the State of Sao Paulo without realizing the capacity of the State to expand agriculturally. Sao Paulo is well served by railways and is generally considered to be the most progressive State in Brazil. The favorable climate contributes to greater enterprise and industry than are possible in States less well situated. The large areas of timber and pasture lands invite exploitation. The capacity of the State in respect to agricultural expansion has been demonstrated in the period since 1925, when an increase of about 50 percent in the number of coffee trees under production occurred during a period of only 8 years. Cotton expansion is taking place on a scale which undoubtedly can only occur in a new, enterprising country with ample agricultural resources and a history of agricultural expansion.

Types of Land Now Used for Cotton

Official estimates are not yet available on the acreage which produced the record cotton crop of 784,000 bales in Sao Paulo in 1935-36. On the basis of seed distribution, however, 1935-36 plantings were unofficially estimated to have been in the neighborhood of 3,000,000 acres.

Seed distribution for planting the 1936-37 crop is estimated in trade circles to exceed that for the preceding year's crop by 20 to 30 percent and would indicate plantings in excess of 3,500,000 acres. Despite the great increase in cotton acreage which has taken place in recent years, from an average of only 125,000 acres during the 5 years from 1927-28 to 1931-32 to the estimates of approximately 3,000,000 acres in 1935-36 and perhaps 3,500,000 acres in 1936-37, availability of land does not appear to be a factor likely to limit cotton production in Sao Paulo in the near future.

The new areas planted to cotton since 1932 may be divided into four groups according to former use or condition. In order of importance these seem to be (a) timber land and brushland, (b) pasture land, (c) land formerly used for corn, rice, beans, and other crops, and (d) land from which coffee trees have been removed or on which cotton is planted between the rows of coffee trees.

In the west, along the present timber frontier of the State, the cotton lands consist almost entirely of virgin timberland. In districts to the east where the pasture acreage has always been large, burnt-over land or old pastures which have grown up to brush or small timber may be the principal type of land being used for cotton. Further east, pastures are being used for cotton; and, in the general farming districts and in the coffee areas, land used formerly for corn and other cereals, and to some extent for coffee, now is growing cotton.

#### Timberland and brushland most important

It is estimated that more than half, possibly three-fourths, of the present cotton acreage is timberland and brushland cleared expressly to grow cotton. In addition to virgin timberland this classification includes considerable burnt-over land and old pastures which, under the semi-tropical conditions prevailing, grow up quickly to brush and trees. Broadly speaking, the western timber region covers about one-third of the area of the State, and the soil is said to be excellent for cotton.

Progress in land clearing and cotton growing has been rapid. The development which has taken place in the Marilia district is especially noticeable. Mr. Nyhus was informed that 10 years ago coffee lands on the ridges were being cleared and coffee trees were being planted with as much enthusiasm as land is now being cleared for cotton. Land close to Marilia and on the nearby ridges was cleared and planted to coffee trees during the coffee boom, from 1925 to 1930, but away from the railway line and in the valleys land clearing is now going on at a rapid rate. Land values have almost doubled since 1932. The town itself is only 10 years old and is now a thriving frontier center. Only one cotton gin existed in the region in 1934; now there are six.

The methods of clearing the land, of growing cotton, and of colonizing these timberlands and brushlands represent the most distinctive features of cotton growing and expansion in the State of Sao Paulo. Figure 2 shows the heavy growth of timber and undergrowth on the virgin timberlands. The clearing process seems to be comparatively simple. The trees and brush are cut down in the autumn months of March and April. They dry out during the winter months, and the land is usually burned over in September. It is then turned over to tenants and, after some further cleaning and working with a hoe, cotton is planted by hand between the stumps in rows about 7 feet apart and about 3-1/2 feet apart in the rows. Throughout this zone, stump pulling or blasting is unknown. Plowing is not done until the land is relatively free from stumps.

Some lands are more thoroughly burned than others, and, in addition, the old cotton plants are used in burning the land after each harvest. By piling and burning the old cotton plants around the bigger stumps and logs, the land is often fairly clean in 3 or 4 years, at least sufficiently to make good pasture land or to enable plowing for cotton or corn. The amount of stumps and logs on new land devoted to cotton, as indicated in figure 3, is one of the distinctive conditions under which cotton is being grown in the newer producing areas.

For the more heavily timbered land, men are hired by the land-owners to cut the brush and timber preparatory to burning. Wages paid for this work are equivalent at free market exchange rates to only \$3 to \$4 per acre. When the timber is small or consists mostly of brush, the land is usually turned over to colonists on a 3-year contract without being cleared or burned over, and the tenant clears and burns the land preparatory to planting to cotton. Whether timberland or brushland, however, the rapidity with which a tract is converted into cotton land is striking. Figures 2 and 3 show operations in clearing and burning land, and figures 4 and 5 show land on which several cotton crops have been grown.

It is a distinctive quality of the soils of this region, in fact of the whole of the State of Sao Paulo, that their structure is extremely friable. The soils are so friable and mellow that working them with a hoe is surprisingly effective. Even pasture lands for the most part are not plowed but can be prepared for cotton by hoeing.

Representative of the conditions and of the expansion taking place in this virgin-timber zone are data from three farms at Marilia included in the tabulation given below. Farm A consists of 1,440 acres, of which 372 acres, located on the ridges, are in coffee trees. The first cotton crop on this farm was harvested in 1934. Each year since then some new timberland has been cleared and more cotton planted. In April and May of 1936 450 acres additional were cut in order to plant 900 acres of cotton during the current season, as compared with 450 acres last year. Farm B is operated by a Japanese who, beginning in 1933, has bought additional land each year, and cleared and rented it to Japanese and Brazilian farmers on a share-rent basis. He cleared an additional 600 acres for planting cotton this current season. The owner of tract C is probably the largest grower in the Marilia district. The first piece of land cleared on a 180,000-acre tract of timber consisted of 180 acres, which were planted to cotton in September 1933. Since that year, annual clearings and additional acreages of cotton have been 420, 1,320 and 1,506 acres, successively. The latter acreage was cleared for planting this season, making a prospective cotton area on this tract of 3,426 acres. He had 80 share tenants last year, of which one-third were Japanese.

The area of land cleared for cotton in recent years on the three farms is indicated below:

<u>Year</u>	<u>Farm A</u> (Acres)	<u>Farm B</u> (Acres)	<u>Farm C</u> (Acres)
1933-34	108	300	180
1934-35	264	360	600
1935-36	450	480	1,920
1936-37 <u>a/</u>	900	1,780	3,426

a/ Land cleared for planting during the current season.

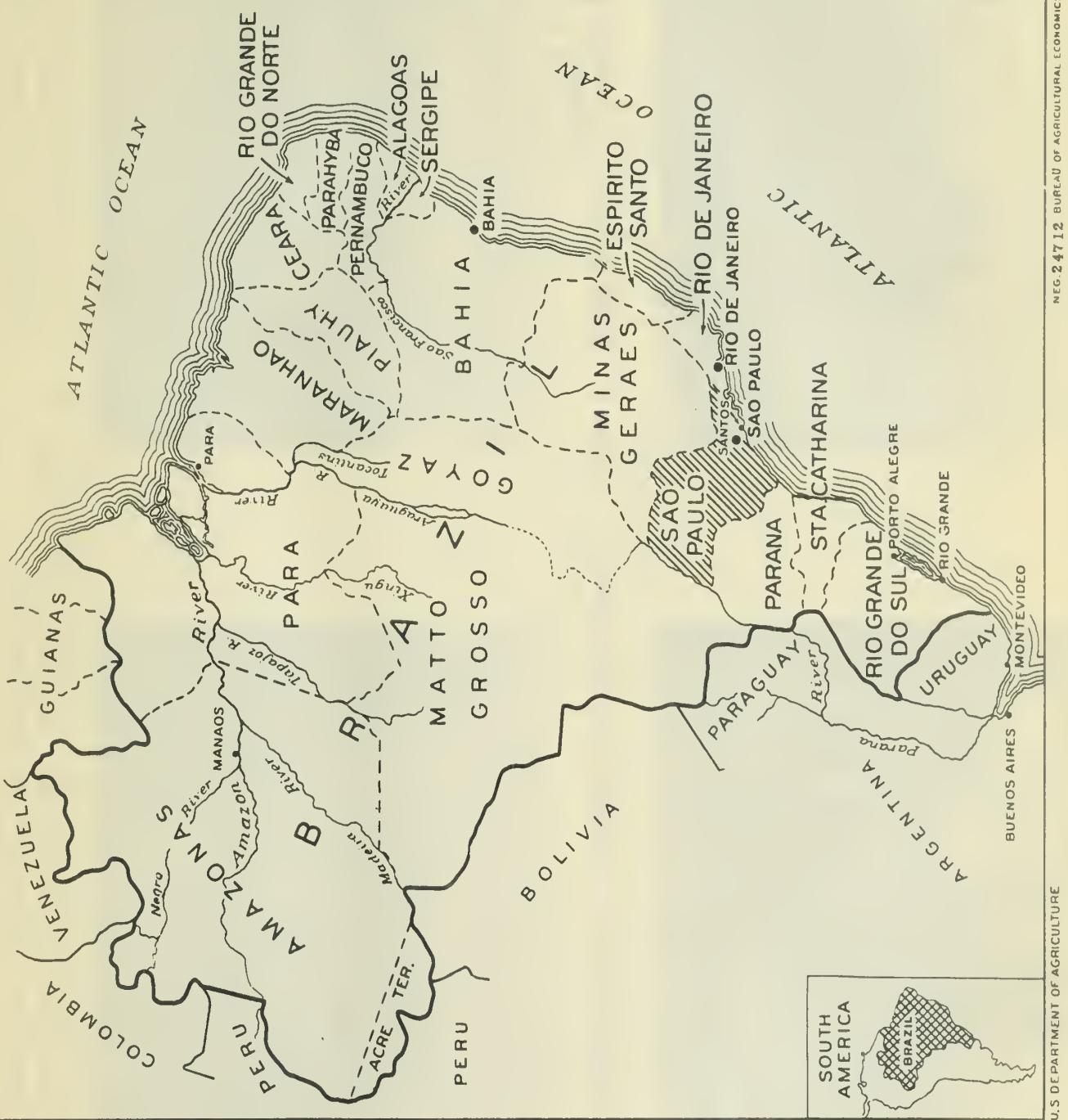


Figure 1 - Outline map of Brazil

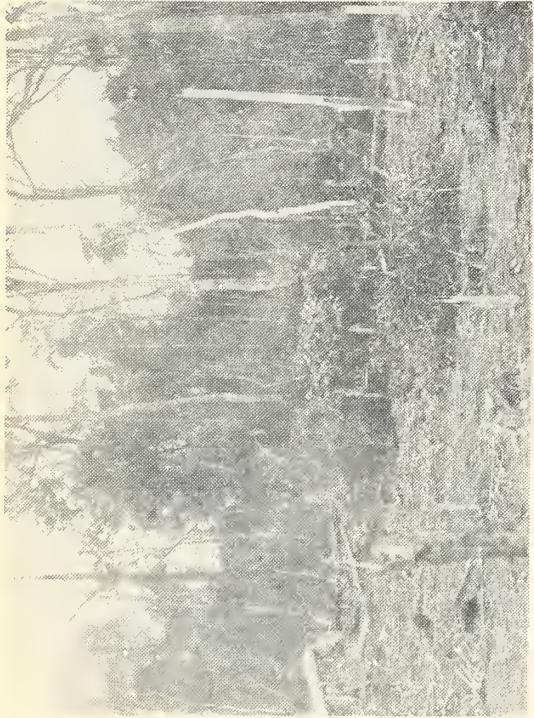


Figure 2 - Timber land being cleared for cotton growing

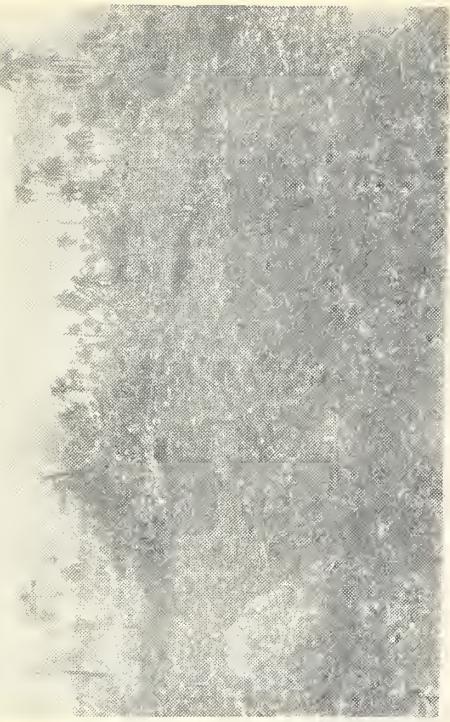


Figure 3 - Brush land being prepared for cotton by burning



Figure 4 - Cotton-producing timber land. Except in the foreground, plants from the last crop have been burned

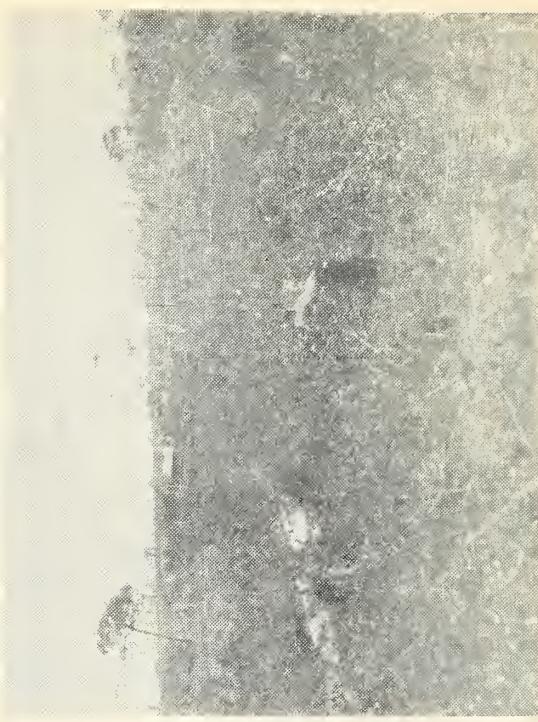


Figure 5 - Cotton-producing timber-land. Repeated burnings of old cotton plants have almost cleared the land of stumps

Most of the timberland and brushland is being cleared to grow cotton, but it is interesting to note how cotton growing has become a part of the operations of livestock ranches. In the grazing districts of the State, improvement and development of properties consist, to a considerable extent, in continually burning and clearing timberlands and converting them into new pasture lands. Many owners formerly made a considerable expenditure for this purpose or permitted farmers to use the land for 2 or 3 years in exchange for clearing it. Formerly the general practice was to plant corn for the first year or two after the timber was burned and then to sow grass seed. At the present time, however, timberlands and brushlands intended eventually for pasture are being turned over to cash tenants to use for growing cotton for 3 years or more before converting into pasture. The minimum cash rental for these lands seems to be approximately \$1.50 per acre, in addition to clearing them and returning them as pasture.

#### Former pasture lands placed in cotton

Pasture land seems to be the second most important type of land which has gone into cotton. The term includes pastures of various grades ranging from excellent tame grassland to pastures 10 to 30 years old, as well as pastures which have grown up to brush and have become more or less worthless for grazing purposes. The latter, in the older sections of the State, were some of the first lands planted to cotton, and in some districts where timberland is relatively scarce it has been the leading source of land for cotton growing. Much of the cotton acreage on coffee plantations is former pasture land, and in most districts of the State there is considerable old and rather unproductive pasture land, which has been made available to cotton farmers. See figures 6 and 7.

The renting of pasture land for cotton growing has not materially affected the livestock industry because of the abundance of such land throughout the State. The influence of the demand for land on which to grow cotton and the rentals being paid, however, are reflected in several instances in the number of cattle grazed. On a coffee plantation in the old coffee belt of the State, 1,320 acres of cotton are being grown on former pasture land. The owner formerly grazed 300 head of cattle, but now he has only 300 head. The owner of a number of tracts of land purchased originally for grazing cattle has one tract of 21,000 acres of timberland and brushland located in a cotton-growing district. About \$1.50 per acre cash rent can be secured from cotton farmers, and the owner considers that it is more profitable to rent this land than to retain it for grazing purposes. Accordingly, 10,200 acres have been rented to cotton farmers on 3-year contracts whereby the tenants clear the land.

#### Reduction in area of corn and other general farm crops

Land formerly used for corn and other cultivated crops also is being used for cotton. It is stated that in the general farming districts of the State, where corn, beans, and rice are grown, cotton has been substituted for a considerable acreage of these latter crops. Current acreage statistics are not available on the shifts which have occurred in this respect, but it appears that the corn acreage has probably suffered more than the acreage of other crops.

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A part of the labor supply of the coffee plantations has consisted of independent farmers living on small plots of ground, raising their own supplies of corn, rice, and beans, and hiring out for seasonal work as coffee hands. It is stated that numbers of these small independent farmers and their families have left their hillside plots and have gone into cotton production. This development is not significant in respect to making land available for cotton, but the influence of this and other factors in reducing the production of corn, beans, and rice has prompted the Brazilian Rural Society to point out the dangers to the State of the reported decline in cereal harvests. Posters have been prepared and displayed urging increased production of cereals. Formerly, when new coffee plantations were set out, it was a common practice to plant these crops between the rows of small trees for 3 or 4 years; but, with the restrictions on new coffee plantations, this type of production has diminished sharply.

#### Cotton grown between rows of coffee trees

Land formerly or now producing coffee also is being used to some extent for cotton growing. This land includes that from which coffee trees have been removed and that on which cotton is planted between the rows of coffee trees. In the older coffee districts of the State, it is a common practice to plant an occasional row of cotton between rows of coffee trees. In some of the older coffee regions, particularly about Riberao Preto and Campinas, trees are being abandoned and cut down at a rapid rate. See figure 8. Cotton grown on former or present coffee land, however, probably does not represent more than 10 percent of the cotton production of Sao Paulo. The practice of planting cotton between the rows of coffee trees is recognized as injurious to the trees, and frequently occurs in anticipation of their abandonment at an early date.

Figure 9 shows cotton plantings between rows of coffee trees. There are numerous instances in the old coffee districts of the State, from Riberao Preto to Campinas, where 40 to 50 percent of the trees have been abandoned and cut down. It is probably an exception to find a grower whose plantation has been so well kept up that he has not abandoned some trees. Probably the heaviest abandonment has already taken place, but the process continues and many growers see in this continuous abandonment of trees the prospect of an eventual adjustment of production to market requirements at a satisfactory price level.

It is quite clear that the high prices for coffee which continued up to 1929 kept in production many low-yield trees, which with less favorable prices would have been abandoned. The relatively high returns from cotton have undoubtedly tended, both directly and indirectly, to encourage the abandonment of these trees. Almost everywhere in the old coffee districts, however, it is contended, because of low yields brought about by the age of the trees, unfavorable soil conditions, inadequate care, and other causes, that most of the trees which have been abandoned had not justified the expenditure of labor and other costs of caring for them and that abandonment would have occurred in any event.

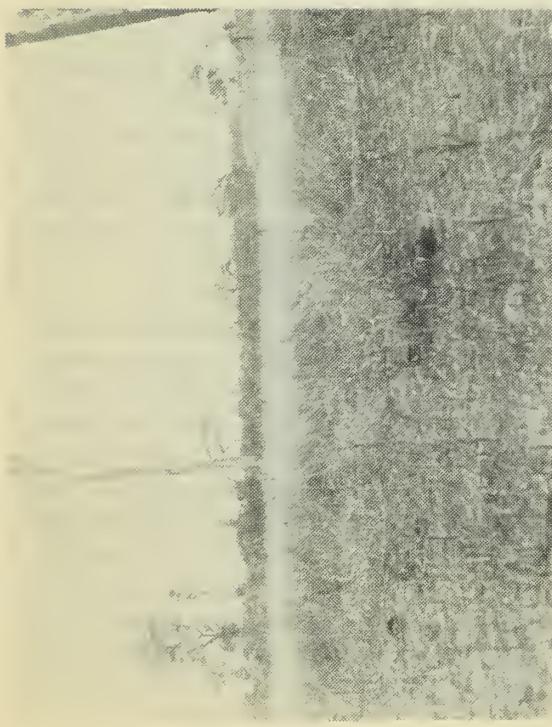


Figure 6 - Pasture land partially burned in preparation  
for cotton planting



Figure 7 - Pasture land being plowed for cotton



Figure 8 - Coffee trees being removed to make way for  
cotton or other crops

Figure 9 - Coffee trees inter-planted with cotton

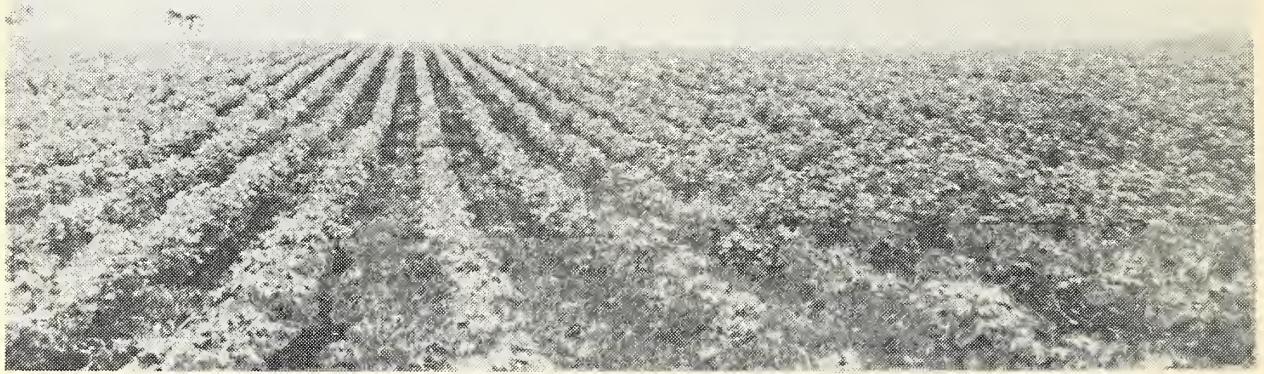


Figure 10 - Cotton growing in an old established producing region of southern Brazil



Figure 11 - Coffee trees 6 or 7 years old in São Paulo

At this point, it should be noted again that only in exceptional cases has it been necessary to cut down coffee trees in order to obtain land on which to plant cotton. There are some plantations where the amount of timberland, pasture, or cropland is so limited that to abandon part of the coffee trees seems to be the best means of securing land for cotton. In general, however, most of the coffee plantations have either pasture, timberland, or other land which can and is being used for cotton; and, although coffee trees are being cut down on these plantations, the land is not being used widely for cotton.

Data for two plantations in the Riberao Preto district indicate the land resources of the larger plantations. On one of them, one-third of the number of coffee trees (1,100,000 in 1928) have been abandoned, but the present cotton area of 1,320 acres was former pasture land and the owner still has 2,400 acres of such land and 900 acres of virgin timberland, which he states could be used for cotton. The 6,000 acres of cotton on the other plantation consisted formerly of 3,600 acres of timberland and brushland, 1,500 acres of pasture land, and 900 acres of coffee and corn land. This plantation still has 6,000 acres of good timberland and a larger amount of pasture land.

#### Three Major Sources of Labor

Relatively favorable returns from cotton have drawn and continue to draw labor away from other enterprises in Sao Paulo, as well as in other Brazilian States. There is very little definite statistical information in respect to the sources of the labor supply for cotton growing, but the following appear to have been the principal ones: (a) Former laborers on the coffee plantations; (b) small farmers who formerly grew corn, rice, and beans; (c) Japanese immigrants; and (d) native laborers who have migrated from other States of Brazil. Mr. Nyhus is of the opinion that the above order indicates the relative importance of each classification, but opinions differ in this respect and the first three sources may be of about equal importance.

The depression in the coffee industry is especially reflected in the lessened demand for labor in this industry. On many of the coffee plantations, however, the trees are being as well cared for as at any time in the past and the labor supply is being maintained at as high a level as formerly. This is particularly the case in the newer coffee districts where the trees are young, yields are high, and the plantations may be operating profitably even at current coffee prices. There is an apparent tendency, however, to use less labor. The assignment of more trees to a family and the omission of one cultivation and other details of work on the plantation are general. Many colonists in the cotton districts state that they came from old coffee plantations in the eastern part of the State or in the States of Rio de Janeiro and Minas Geraes.

Most Japanese colonists who have entered the country during the past 5 years have been contracted for by the coffee plantations prior to their departure from Japan. One of the conditions of immigration under the contract is employment in the coffee plantation for a minimum of 2 years, which enables colonists to learn some Portuguese and become acquainted with Brazilian conditions. After serving this 2-year period, they fend for themselves, and during the past 2 or 3 years their migration to the cotton-growing districts has been marked. In addition to those who have left the coffee plantations, some have come from the Amazon Valley where the Japanese colonization projects have not been entirely successful. Others, who formerly grew rice, beans, and other crops, have also turned to cotton.

Sao Paulo maintains a labor office with an extensive program of activities in order to settle immigrants from central and southern Europe and laborers from other parts of Brazil. When colonists arrive on the borders of the State, free railway transportation is provided and assistance given in finding the best location in which to settle. Statistics issued by the immigration office for a 5-month period, August to December 1935, indicate that 28,014 immigrants arrived and were sent chiefly to the new cotton-growing districts. Many of these settlers came from the northeastern States, which have been subject to periodic droughts.

There seems to be a pronounced migratory tendency among laborers in Sao Paulo due, apparently, to the 1- and 2-year-contract system of hiring coffee workers and to the continuous shifting from one coffee plantation to another. This tendency makes possible relatively prompt adjustments of the labor supply to wages and returns and may account in part for the rapid shift to cotton. In connection with labor supply, gin owners point out that the 1935-36 crop, which was the largest in the history of the State, was picked and marketed in a shorter period of time than were previous crops. In September, plantation owners reported no difficulty in finding new colonists to work the additional 1936-37 cotton acreage.

#### Land Tenancy, Rents, and Wages

In view of the prevailing system of large landholdings, cotton growing in Sao Paulo is being carried on largely by cash or share tenants. The number of small owner-operated farms is increasing and some cotton is grown by day laborers, but the acreage of cotton grown by owners of the land is probably not more than 10 to 15 percent of the total cotton area. Japanese tenants prefer to cash rent, and more land is rented on this basis than on a share basis. Rents vary considerably. The equivalent in American currency of cash rent for timberland recently cleared in the Marilia and other timber districts is approximately \$3.50 per acre. In other districts the cash rent varies from about \$1.50 to about \$3 per acre. Very frequently tenants are required to clear the land by a 3-year cash-rent contract.

It is generally recognized that the labor problem for the coffee growers is becoming more difficult because of the increased interest in cotton. The growing of cotton between the rows of coffee trees or on separate pieces of land is in part due to the necessity to give the laborers an opportunity to work with cotton and to insure thereby a labor supply. In one instance, the owner of a large plantation has made provision for coffee workers to buy plots of coffee trees. He explained that this was the only means which he could devise of keeping laborers. The complaint of shortage of laborers is general on coffee plantations. A share-renter on new land in the western part of the State made a detailed comparison of his income during the past season from cotton with his income 2 years ago when he had been employed on a coffee plantation. The comparison indicated that he realized from his year's work in cotton twice the amount obtained as a laborer on a coffee plantation. He emphasized also his independent status as a cotton grower. This case, of course, may not be representative of the comparative returns from coffee and cotton or as the appeal which cotton growing has for coffee workers. Wages for coffee workers are advancing, but, until the coffee situation has improved to a greater extent than at present, there seems to be little prospect that coffee plantations will be able to compete very successfully for laborers attracted by the returns from cotton.

Farmers growing corn, beans, and rice on small pieces of land throughout the eastern half of the State constitute another source of labor for growing cotton. Many of them work by the day or month on coffee plantations. These small independent farmers have been especially attracted, it is said, to cotton growing. The shift from corn, beans, and rice to cotton in the general farming districts has occurred largely on farms of this type.

Probably as much as 40 percent of the cotton crop in Sao Paulo is being grown by Japanese. At present, in accordance with the constitution adopted in 1934, annual immigration from any one country is restricted to 2 percent of the total number of nationals of that country which have settled in Brazil during the preceding 50 years, and would limit entries from Japan to about 3,400 immigrants per year. This calculation is based on estimates of a Japanese population of 176,000 in Brazil at the present time. While some exceptions to the immigration restrictions appear to have been made in Sao Paulo, the current influx of immigrants from Japan is much below that of the years immediately preceding the adoption of the new constitution.

In general there has been a concentration of Japanese in the cotton-growing industry. Japanese settlers are growing cotton in the newer parts of the State, particularly along the western timber frontier. They are recognized as excellent workers and as good cotton farmers, although cotton is a new crop to them. They are especially thorough in clearing and burning the land after each harvest.

Occasionally the large landowners have gins of their own and tenants are obliged to sell their cotton to the landowners at current market prices. Possibly one-third of the cotton acreage is being rented and operated on a share basis. A 50-50 basis seems to be the most common arrangement, with the landowners supplying only the cleared land; but in some cases the landowner supplies seed and spray materials and the share rent is accordingly higher. More or less financing of the growers on the part of the landowners is general with cash as well as with share tenants.

On some tracts of land the number of tenants is so large that the properties are administered as small colonies by the landowners. On a tract in Marilia which was in timber in 1932, there are now 121 families, each working on acreage of about 30 acres. Of the 121 families, 60 are Japanese. On another tract there are 106 cotton tenants, in addition to 4,600 people representing coffee and other farm workers and their families. Possibly the largest cotton grower in Sao Paulo is a large-scale coffee-growing and land company. The 15,000-acre tract of cotton operated by this company is about as much cotton as the present administrative unit can handle efficiently.

The status and opportunities of cotton workers, either as cash or share tenants, are considerably superior, apparently, to the conditions of coffee workers. Many contend that no other crop has ever provided a similar opportunity for workers and their families to farm on their own account, to make some financial progress, and to acquire ownership of land. Their present conditions of living are extremely plain and primitive, but a number of tenants emphasized their improved conditions and prospects and contended that they would never return to the status of coffee laborers. Wages to pickers this past season were equivalent to about 50 cents per 100 pounds of unginned cotton. Present wages of farm laborers by the day, without board, are equivalent to from 30 to 40 cents, United States currency.

#### Soils Chemically Poor but Physically Good

The soils of Sao Paulo contribute greatly to the ease with which cotton is grown. An official soil specialist at Campinas characterizes the prevailing soil type in the western half of the State as "chemically poor but physically excellent." Although extremely friable, they contain a high percentage of silt and clay and, because of these fine materials, have a high water-holding capacity. Very little leaching occurs. All soils are red or violet in color as a result of the oxidation of well-drained soils which occurs in the tropics, and the dark color which characterizes the topsoil in more temperate climates is absent. The topography of most of the State is rolling, and the soils are well drained.

On the basis of a geological study recently published, the same soil specialist estimates that there are in the State 25,000,000 acres

of good cotton soil, similar to that at Marilia, of which fully 7,500,000 acres are still in virgin timber. He does not consider these soils high in plant food material, and farming practices confirm this fact. The practice of letting soils rest after from 3 to 7 years of continuous cropping and the frequent references to "tired" soils would indicate that the soils become depleted quite rapidly. It is stated that because of this tendency the Japanese farmers have been eager to secure virgin timberlands or new lands and that already there has been some abandonment of the less productive, depleted soils, after two or three cotton crops, in favor of the newer timber and brush regions. In view of the amount and availability of virgin timberland and relatively fertile brushland and pasture land, it would seem that shifting to these will continue for years to come and delay the general use of commercial fertilizers. At Campinas, however, where cotton is planted on land formerly in coffee trees, the use of commercial fertilizers seems to be necessary.

Cotton yields as reported by growers interviewed do not represent average yields for an entire district, but a yield in 1936 of about 1,100 pounds of unginned or 350 pounds of ginned cotton per acre was frequently claimed in the recently burned timber districts. On some large tracts, average yields varying from 175 to 255 pounds of ginned cotton per acre were reported. Yields in 1935 were much lower, some complete losses occurring, but yields in 1934 were good.

#### Other Factors Influence Expansion in Cotton

##### Machinery not used extensively

The amount of stumps and logs on recently burned timberland and brushland now planted to cotton precludes the use of plows, cultivators, and other machinery. In the general farming districts or on old pasture lands, however, there is a tendency to use machinery instead of hand tools. At Presidente Prudente a dealer estimates that each year somewhat more land is being plowed and cultivated and that possibly 15 percent of the cotton land this past year was worked with machinery. At Avare, in an older farming district, it was believed that 65 percent of the cotton land was plowed and cultivated. A few tractors are in use for plowing on coffee plantations where cotton is being planted on old pasture lands.

##### Insect and disease problems not serious to date

The Cotton Section of the Sao Paulo Department of Agriculture is in charge of seed disinfection and distribution. The disinfecting of seed to kill the larva of the pink boll worm is compulsory. Spraying for the cotton leaf worm is now very general, but an experience in 1935 is a commentary on the newness of the cotton industry. Much of the 1933 and 1934 acreage had not been sprayed and, when a particularly heavy infestation of leaf worm developed in 1935, the country was inadequately supplied with arsenate of lead and other arsenical spraying materials.

As a consequence, many farmers lost their crops. To date, however, insect and disease troubles have not been particularly serious, but experience thus far is too short-lived to provide a basis for judging their eventual extent.

#### Ginning facilities improving

Growers sell their cotton unginned. The number of gins has increased from 103 in July 1933 to 379 in July 1936, with 891 stands and 67,201 saws. Old gins have been discarded, modern gins have been built, and, in general, ginning equipment is now considered efficient and up-to-date. Large cotton buyers are called upon to do considerable financing of growers through the owners of local gins.

#### Price relationships have favored cotton

The expansion in cotton acreage of the State is due, primarily, to the altered situation of prices and returns in which prices of cotton relative to prices of coffee, corn, beans, rice, and cattle have been more favorable than formerly. The relation of cotton prices to coffee prices is of the most significance, but relatively high cotton prices also have attracted labor, land, and capital from corn and other farm enterprises.

A study of cotton versus coffee in Brazil, published in Foreign Crops and Markets, December 9, 1935, indicates that over a 35-year period, from 1901 to 1935, annual unit export values of cotton have varied from 13 percent below to 373 percent above unit export values of coffee. In the 5-year period from 1925 to 1929, prior to the sharp break in coffee prices, however, export values of cotton on an average were only about 6 percent above export values of coffee. The premium of export values of cotton over those of coffee in 1930 was 40 percent and in 1931, 19 percent. After deducting the export tax of 45 milreis per bag on coffee, the percentage premium of export values of cotton over those of coffee in 1932 was 77 percent; in 1933, 81 percent; in 1934, 106 percent; in 1935, 192 percent; and in 1936 (first 8 months), 148 percent. Only during the World War years did the percentage premium of cotton over coffee exceed the 1935 figure. Absolute milreis prices of cotton also are high. Only in 1923 and 1924 were the average export values, in milreis, of cotton higher than in 1935 and 1936.

The export values of coffee, moreover, do not completely reflect the depression in the coffee industry of Brazil at the present time. There are additional taxes of about 13 milreis (about 78 cents at open market rate of exchange) per bag (132 pounds) on coffee and apparently the only tax on cotton is a state tax, which is negligible, being only 10 reis per kilogram (less than 3 cents per 100 pounds). Probably a more important factor than additional taxes is the percent of the crop which growers are

compelled to sell to the Coffee Control Department at fractions of the market prices and described as "sacrifice quotas." Coffee purchases, beginning with 1931, had as a primary objective the removal of excess stocks by burning. Forty percent of the 1933-34 crop was bought at only 30 milreis (\$1.80) per bag (40 percent of the estimated current farm price). During the current season, the "sacrifice" quota is 30 percent of each grower's crop at a price of 5 milreis per bag (equivalent to approximately 30 cents United States currency per 132 pounds). The latter hardly covers the cost of bags and delivery to country stations. In the current season, therefore, market prices are obtainable for only 70 percent of the crop.

The inability of the coffee growers to market their coffee freely has also affected their attitude toward the crop. The rate at which the crop can flow to the market is subject to governmental control and regulation, and final liquidation of a crop is reported to be a slow process. Retirement of the coffee loans and lifting of the export tax of 45 milreis per bag does not appear to be in early prospect. Estimates by growers indicate that farm prices of coffee are not more than half the 1928 and early 1929 rates.

In addition to the disparity between coffee and cotton prices, relatively higher prices have prevailed for cotton than for other important crops. For 6 years prior to 1936, corn prices remained at a comparatively low level and showed no upward trend, while cotton prices tended upward. For the 1936 corn crop, prices are about 50 percent higher than they were in 1934 and 1935, which fact may check the shift from corn to cotton and possibly bring about a substitution of corn for cotton on some lands. This latter prospect was indicated at Avaré.

Sugar prices have maintained more nearly a normal relation or parity with cotton prices than have those of any other major farm crop, primarily because of sugar production control measures in Brazil.

#### Currency depreciation

The depreciation of Brazilian currency has been a major factor contributing to the high milreis prices of cotton and to the disparity between cotton prices and the prices of other farm products, notably corn, which are on a purely domestic consumption basis. Due more to currency depreciation than to any other factor, milreis prices of cotton in 1935 were the highest since 1925 with the exception of a few months in the 1932-33 crop year, when prices at São Paulo were not on an export basis. Prices for corn not only remained unchanged for 2 or 3 years following the beginning of currency depreciation in late 1929 but remained practically constant until the short crop of 1936 was harvested. The higher prices for corn this season suggest possible readjustments in the general price structure in Brazil. Such a development would tend to reduce the disparity between prices of export crops and crops grown for domestic consumption.

Governmental encouragement

Mr. Nyhus was impressed by the widespread awakening to the possibilities of cotton as a crop adapted to conditions in São Paulo. Federal and State agencies not only have been of assistance in such matters as experiment station and educational work, seed distribution, and inspection services, but have carried on an active publicity campaign encouraging cotton production. In their efforts to stimulate cotton production, these agencies have been influenced in no small part by the desirability of a broader diversification of agriculture and a lesser dependence on coffee as an export crop.

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## AGRICULTURE IN THE GERMAN-CANADIAN TRADE AGREEMENTS . . .

In recent years, there has been a close parallel in the nature of, and development in, the trade of the United States and Canada with Germany. Therefore the trade and payment agreements recently concluded between Germany and Canada are of special significance. The decline in exports from these two countries to Germany resulted from the latter's attempt to achieve self-sufficiency in agriculture, to conserve foreign exchange, and to bring about a bilateral balance of trade with individual countries. Exports from both Canada and the United States to Germany have consisted largely of agricultural products. In 1929, the United States enjoyed a favorable balance of trade with Germany to the extent of approximately 2 to 1. During the same year, Canadian trade with Germany was favorable to the extent of approximately 4 to 1. By 1935 the United States trade with Germany was favorable only to the extent of about 3 to 2, while Canada actually imported more from Germany than it exported to that country.

The simultaneous conclusion on a most-favored-nation basis of provisional trade and payment agreements between Germany and Canada on October 22, 1936, marks an interesting step in German-Canadian trade relations. In these agreements, Canada, an overseas agricultural exporting country, which formerly had a very large favorable balance of trade with Germany, has agreed to conduct trade on the basis of importing as much from Germany in value as Germany imports from Canada. This, of course, is in line with Germany's recent commercial policy as exemplified by the various barter and clearance agreements concluded in recent years. Of particular interest is the consent by Canada of the allocation of definite percentage shares of foreign exchange arising from sales of German products in Canada for the purchase of specified Canadian products.

In 1929, German imports from Canada were slightly in excess of 300,000,000 Reichsmarks (about \$71,000,000 at current rate of exchange), of which about five-sixths consisted of foodstuffs, largely wheat. German exports to Canada, on the other hand, were valued at only about \$20,000,000. Subsequently, the volume of trade dwindled rapidly, though Canada still maintained exports at two or three times the value of imports from Germany until 1935. In 1935, German imports from Canada virtually ceased, amounting to only about \$5,000,000 as compared with exports to Canada of about \$9,000,000; and in 1936 the trade continued small, with about an equal movement in both directions.

The new provisional agreements will tend to improve the immediate position of Canada in the German market. In the long run, however, they would seem to be unfavorable for Canada in view of the character of that country's trade with Germany, since the only way in which Canada can increase exports to Germany is by increasing imports of German goods. An increase in Canadian imports from Germany, of course, will depend upon the ability to dispose of such imports in the Canadian market. The bilateral balancing of trade between the two countries will normally tend to restrict the movement of goods.

Certain provisions in the new agreements, however, are designed to facilitate current business and possibly to increase to some extent the present small volume of trade between the two countries. The payment arrangements are particularly significant in this respect. These involve an undertaking by the German Government to make available for the purchase of Canadian products all the foreign exchange accruing from German exports to Canada. The German foreign exchange authorities are authorized to grant foreign exchange certificates to German importers each month equal to the receipts of foreign exchange from exports to Canada in the second preceding month. In order to meet the practical requirements of the trade, the exchange authorities will be permitted to grant such certificates in advance for a period up to 6 months, but the monthly amounts shall not exceed the relatively small monthly average value of exports to Canada in 1935. During the first 2 months of the agreement, Germany also will make available an adequate amount of foreign exchange accruing in the base month.

These payment arrangements, which are modeled after those prevailing in respect to German trade with England, constitute a less cumbersome arrangement than heretofore in effect. The German Government, in order to insure receipt of the necessary foreign exchange, will no longer permit payment for exports to Canada through compensation or in Aski or blocked <sup>a/</sup> marks except during the first 6 months of the agreement, when compensation trade will be permitted provided it does not affect the undertakings in the agreement as to individual commodities. The immediate advantage to Canada in these payment arrangements is that all the proceeds of German exports to Canada will now be utilized for the purchase of Canadian goods, whereas formerly a considerable share of these proceeds were, no doubt, used for the purchase of goods from other countries.

The provisions under which Germany undertakes to allocate a definite share of the proceeds of German exports to Canada for the purchase

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<sup>a/</sup> Aski marks are those resulting from the sale of foreign goods in Germany, which, under Government control, may be used for the purchase for export of certain German goods. Blocked marks originate primarily from banking and security transactions and may, under certain conditions controlled by the German Government, be used for the purchase of German goods for export.

of specified Canadian farm products are highly important from an agricultural standpoint. Germany has agreed to utilize at least 35 percent of the foreign exchange proceeds, with no maximum amount specified, for the importation of Canadian wheat; 5 percent is allocated for the purchase of fresh apples, with an annual maximum, however, of \$600,000 (Canadian); 1.25 percent is allotted to seeds with an annual maximum of \$160,000; and other percentages are allocated for salmon, fishoil, lumber, and asbestos. A detailed schedule showing the allocation of exchange, by products, is given below. The unallocated balance (about 35 percent) may be utilized for the purchase of any products desired by the German Government. Taking the 1935 exports of Germany to Canada as a basis, the unallocated balance would involve approximately \$800,000 a month. Increased imports into Canada from Germany would, of course, raise this amount correspondingly.

Schedule of German foreign exchange allocations a/  
for purchases from Canada

(Under Article VI of the German-Canadian Payment Agreement)

<u>Commodity</u>	<u>Percentages</u>	<u>Annual maximum value Canadian dollars</u>
Wheat b/ .....	35.00	No maximum
Apples, fresh.....	5.00	600,000
Apples, dried.....	0.60	60,000
Cheese.....	0.20	20,000
Honey.....	0.20	20,000
Sausage casings:		
Beef casings.....	0.50	60,000
hog casings.....	0.25	No maximum
Seeds.....	1.25	160,000
Salmon, salted.....	2.50	275,000
Salmon, frozen.....	0.25	25,000
Salmon caviar.....	0.15	15,000
Eels, frozen.....	0.50	75,000
Lobsters, canned.....	0.20	20,000
Fishmeal.....	1.40	No maximum
Fishoil.....	2.00	No maximum
Black and silver fox skins, undressed.	1.50	No maximum
Lumber, sawn.....	2.00	No maximum
Pegwood.....	0.20	20,000
Woodpulp.....	1.00	100,000
Asbestos.....	8.00	No maximum
Parts of agricultural machines.....	0.20	20,000
Ice hockey equipment.....	0.20	20,000

a/ Foreign exchange arising from sale of German goods in Canada.

b/ To be imported through the Reich Control Board for Grain and Feeding Stuffs, Berlin, or with its permission.

It is evident that Canada will be assured a market in Germany for approximately \$3,000,000 worth of wheat, or about 2,500,000 bushels, more or less, depending upon prices. This amount could be doubled if the German Government should devote all of the unallocated exchange to the purchase of wheat, but it could be further increased only if Canadian imports from Germany should rise substantially. It is expected, therefore, that imports of Canadian wheat will remain far below the average imports of 18,000,000 bushels during the period 1930-1934. The agreements, however, assure the importation of considerably more Canadian wheat by Germany than the very small imports in 1935 and 1936.

The conditions under which Germany will import Canadian apples appear to be quite advantageous for Canada. The allotment of 5 percent of the foreign exchange receipts would seem to assure Canada of a German outlet for 250,000 to 300,000 boxes of apples as a minimum during the current season, with possibly 100,000 boxes additional if Germany should buy up to the maximum figure of \$600,000 specified in the agreement. Such purchases would be considerably in excess of previous Canadian apple exports to Germany. The largest imports from Canada in any one year occurred in 1934, when takings amounted to approximately 125,000 boxes.

It is difficult to forecast how Germany is likely to utilize the unallocated 35 percent of foreign exchange receipts from exports to Canada. Germany has considerable need not only for agricultural products which have hitherto made up the bulk of the imports from Canada but also for raw materials such as ore and asbestos. It is to be anticipated, however, that a part of the unallocated exchange will be used for wheat, a part possibly for apples, and some for barley if Canada should be in a position to export that product. The balance will probably be distributed over a considerable number of products. Thus, the agreement appears to favor Canadian agricultural interests at the expense of other Canadian export industries.

Other features of the trade agreement are the consideration clause (Article III) requiring both Governments to give due consideration to each other's interests in the importation of goods from each other, and the undertaking (Article IV) to give such consideration also in case of the limitation or prohibition of imports of certain goods. These clauses mean that Canadian interests are to be respected by the German authorities in the allocation of import and foreign exchange permits, and also in regard to the often arbitrary purchases of the monopoly organizations, thus removing much of the ambiguity which might otherwise exist under the most-favored-nation clause.

The provision with respect to most-favored-nation treatment (Article I of the Commercial Agreement) merely extends the arrangement hitherto prevailing under the modus vivendi in effect since January 1, 1933.<sup>a/</sup>

<sup>a/</sup> Under which Germany enjoys the Canadian intermediate rate.

The exceptions to such treatment (Article 11), in addition to Canada's reservation under the Ottawa Agreement, and the common ones with respect to frontier zone trade and eventual customs unions, include one affecting Germany that is of more than ordinary interest. This is the exception of any arrangements that may grow out of the proposals made at a conference of 15 European countries held at Stresa in September 1932. As a result of this conference the importing countries of western and central Europe undertook to grant preferential treatment to the agricultural products imported from the 4 Danubian countries, Hungary, Rumania, Yugoslavia, and Bulgaria. The preferential arrangements were made contingent upon general reductions in import duties by the aforementioned Danubian countries. These proposals still figure in the conversations and general aims, both political and economic, of the eastern and central European countries, including Germany and Italy. The German-Austrian-Italian rapprochement has undoubtedly cleared away some of the important barriers to the realization of the Stresa ideas.

The new agreements came into force on November 15, 1936, and will remain in force for one year. Article V of the trade agreement, however, provides that if the economic results expected do not materialize, or if one party considers itself placed at a considerable disadvantage by measures of the other party, immediate negotiations aiming at their correction may be requested. If such negotiations do not lead to satisfactory arrangements within a period of 4 weeks, the agreement can be terminated on 6 weeks' notice. Unless denounced by September 14, 1937, the agreements continue in effect, subject to termination on 2 months' notice. Article VI of the provisional trade agreement provides for its replacement by a general convention of commerce and navigation as soon as possible.

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## MISCELLANEOUS NOTES . . .

### Result of Dairy Relief Measures in Netherlands

Relief and control measures in the Netherlands during the past 3 or 4 years have not brought about the downward adjustments in milk cow numbers and milk production that was anticipated, according to a report to the Bureau of Agricultural Economics from its Berlin office. Total cattle numbers, including young cattle, young milk cows, and cattle for fattening, have been reduced as a result of the Government slaughter program and the limitation placed on the number of calves which may be retained from a calendar year's calf crop. A subsidy to milk producers, however, has encouraged farmers to hold on to their old cows, and milk production has increased.

The milk subsidy is financed by excise taxes on dairy products consumed in the Netherlands, compensating taxes on competitive products, and monopoly fees on imported dairy products and feedstuffs. These taxes, together with the high prices maintained on controlled agricultural commodities in the Netherlands, have resulted in reduced domestic consumption of all dairy products except cheese. Consequently, a larger proportion of the total milk production has been available for export.

Production for export has shifted toward such products as butter and dried milk, which are least affected by restrictions in foreign markets. While no direct export subsidy is being paid, the production bounty to milk producers has enabled them to continue producing a surplus, which must be sold in the export market at world prices. These in many instances are lower than production costs. The age of the majority of the milk cows indicates, however, that the present high level of milk production may be temporary. Increasing beef prices are also expected to stimulate the liquidation of the numbers of old milk cows.

### German Fats and Oils Program

One of Germany's most difficult raw material problems since the depletion of the Reich's foreign exchange funds has been the question of oils and fats. The result has been energetic efforts on the part of the Government to promote domestic production. With the inauguration in September 1936 of the second 4-year plan, these efforts have been intensified, according to a report from Consul Erik W. Magnuson at Hamburg.

The policy of the Reich Government under the second 4-year plan will be to restrict imports of fats and oils, in order to economize on foreign exchange and to promote in every way possible a continued expansion.

in domestic production. Such expansion as has already taken place has resulted largely from increased plantings of oilseeds under governmental subsidies, increased livestock numbers, and increased butter production, the latter made possible largely through restricting the use of milk for nonessentials.

The program also has involved widespread governmental control of marketing, governmental purchasing and storing of imported lard, the establishment of a whaling fleet to reduce dependence on imported whale blubber used principally in the margarine industry, and the use of Government subsidized marmalade as a substitute for butter. All of these efforts are to be intensified under the second 4-year plan. Despite these efforts, the nation is again facing a serious shortage in fats. A recent cable from Ambassador Dodd in Berlin stated that official rationing of fats would be put into effect on January 1.

#### Crop and Livestock Insurance in Bulgaria

Crop and livestock insurance in Bulgaria is administered by the Agricultural and Cooperative Bank of Bulgaria under control of the Government, it is reported by Consul Cavendish W. Carron in Sofia. The original insurance law of January 13, 1911, provided only for insurance against hail. It was later broadened to include damage from frost, drought, flood, and other natural calamities.

Insurance for practically all cereal, fodder, fruit, vegetable, fiber, tobacco, and nut crops is now available. All farmers are eligible. The maximum liability is determined on the basis of a fixed scale of incomes per acre. The country is divided into 15 areas for determining the premium rates.

Special insurance also has been provided for livestock. This is administered through special cooperative insurance associations located at various points in the country. The aim of these associations is to insure the livestock of their members against death by disease or against injury from any cause beyond the control of the owner.

A limit is fixed on the insurable age of livestock, and animals suffering from certain diseases or subject to excessive work are not insurable. Policies are written for 1 year only. The maximum liability on the various categories of livestock is fixed annually. Whenever a member of an association sells to another member, the insurance passes to the new owner. In the event of an outbreak of diseases among his livestock, the insured owner must follow the instructions of the association.

Panama Proposes Distribution of Land to Poor Farmers

An agrarian measure introduced in the National Assembly of Panama on November 6, 1936, proposes the issuance of 50-year land bonds, from the proceeds of which the Government would either expropriate with indemnity or purchase uncultivated land for free distribution to poor farmers, according to Charge d'Affaires ad Interim, Fayette J. Flexer in Panama.

The bond issue would be for one million balboas (\$1,000,000) at 4 percent interest per annum and would be guaranteed by a first lien on special real estate taxes proposed in the bill. The principal and interest on the bonds would be exempted from all existing or future taxes. The bonds would be accepted by the Government in the payment of real estate taxes more than 2 years in arrears and for certain other obligations overdue to the Banco Nacional.

Only the Executive Power could buy or expropriate uncultivated land from private owners with these bonds, and the purchase or the indemnification costs would not exceed the average value of the land as given in the Tax Register during the last 5 years. The special real estate taxes proposed in the bill would be levied at a progressive rate depending on the area of uncultivated land in the possession of the owner. The proposed taxes on such uncultivated land would be doubled every 10 years.

The principle of a reduction in large unproductive land holdings for the benefit of small farmers is receiving favorable comment in the Republic, Mr. Flexer reports. The objective is to develop the nation's agriculture to maximum capacity.

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